This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

AMERICAN MEDICAL ASSOCIATION.

THE

TRANSACTIONS

OF THE

AMERICAN

MEDICAL ASSOCIATION.

INSTITUTED 1847.

VOL. VIII.

PHILADELPHIA:
PRINTED FOR THE ASSOCIATION,
BY T. K. AND P. G. COLLINS.
1855.

1873, Oct. 1.
Gift of
Prof. Edward H. Clarke,
of Boston.
(H. U. 1841.)

By a Resolution passed at the Session of 1851, the Committee of Publication were instructed to print conspicuously, at the beginning of the volume of the *Transactions*, the following disclaimer:—

"The American Medical Association, although formally accepting and publishing the Reports of the various Standing Committees, holds itself wholly irresponsible for the opinions, theories, or criticisms therein contained, except when otherwise decided by special resolution."

Transferred to Harvard Med. School
JUN 7 1915
42.

CONTENTS.

PAGE

Minutes of the Eighth Annual Meeting of the American Medical Association 9

Report of the Committee of Publication 65

Report of the Treasurer 69

Address of Dr. Charles A. Pope, President of the Association 75

Report on the Diseases of Missouri and Iowa 83

The Report of the Committee on the Hygrometrical State of the Atmosphere in various localities, and its influence on Health. By Sanford B. Hunt, M. D., Buffalo, New York 327

Deformities after Fractures. By Frank Hastings Hamilton, M. D., of Buffalo, N. Y. 347

Report on the Diet of the Sick. By Charles Hooker, M. D., of New Haven, Connecticut 445

The Pathology, Causes, Symptoms, and Treatment of Scrofula. By Wm. H. Byford, M. D., Evansville, Indiana 493

Report of the Committee on the Means of Preserving Milk, and on the influence of Pregnancy and Menstruation on the composition and nutritive qualities of that fluid. By N. S. Davis, M. D., Chicago, Ill. 535

Report of the Committee on Dysentery 545

The Effects of Alcoholic Liquors in Health and Disease. By R. D. Mussey, M.D. 571

Sketch of the Caustic Pulverizer. By R. H. Thomas, M. D. 589

Prize Essay.—Statistics of Placenta Prævia. By J. D. Trask, M. D. . . 593

Plan of Organization of the American Medical Association 691

Officers of the Association for 1855 717

List of Permanent Members 718

NOTICE.

THE Committee of Publication have been requested to correct the following error in the memoir of Dr. Peirson, in the 7th vol. of the *Transactions*. On the 611th page of that volume, it is said that "On the 6th of November, 1846, he witnessed at the Massachusetts General Hospital, the amputation—by J. C. Warren—of the thigh of the first person to whom ether had been, for this purpose, administered," &c. The error consists in giving the name of J. C. Warren, instead of that of George Hayward, who performed the operation in question.

The Committee also desire to state that they were reluctantly obliged to omit the elaborate reports of Drs. L. H. Anderson and E. D. Fenner, inasmuch as they were presented to the Committee without the previous action of the Association, the Committee having charge only of "preparing for the press, and of publishing and distributing such of the proceedings, transactions, and memoirs of the Association, as may be ordered to be published."

MINUTES

OF THE

EIGHTH ANNUAL MEETING

OF THE

AMERICAN MEDICAL ASSOCIATION,

HELD IN THE CITY OF PHILADELPHIA, MAY, 1855.

PHILADELPHIA, *May* 1, 1855.

THE Association met at 11 o'clock A. M., in the "Musical Fund Hall;" the President, Dr. C. A. POPE, of Missouri, in the chair, and, on either side, Dr. N. S. DAVIS, of Illinois, and Dr. J. GREEN, of Massachusetts, Vice-Presidents of the Association.

Dr. J. KNIGHT, of Connecticut, and Dr. B. R. WELLFORD, of Virginia, Ex-Presidents of the Association, by invitation, took seats upon the platform.

Dr. E. S. LEMOINE, of Missouri, and Dr. F. WEST, of Pennsylvania, Secretaries, were present.

The meeting being duly organized, the business first in order was stated by the Chair to be the reception of the Report of the Committee of Arrangements.

Dr. HAYS, Chairman of the Committee of Arrangements, after extending, on behalf of the Committee, and of the Medical Profession of the city generally, a sincere and cordial welcome to the members of the Association, proposed that the list of delegates who had registered their names should be read.

The roll, so far as it could then be made out, having been called by the Secretary, twenty-five States, the District of Columbia, the Navy of the United States, and the American Medical Society of Paris, were found to be represented.

The number of delegates who had then registered their names was stated to be 337.

The following list comprises the names of all the delegates, permanent members, and members by invitation, in attendance, at one period or other, during the meeting of the Association.

MAINE.

Maine Medical Association,	A. J. FULLER, G. S. PALMER, ALPHEUS F. PAGE, N. P. MONROE, JAS. C. WESTON, NATHAN EMERSON.
Penobscot Medical Society,	HORATIO N. PAGE, J. P. DICKINSON.
Medical School of Maine,	E. R. PEASLEE.

NEW HAMPSHIRE.

New Hampshire State Medical Society.	SILAS CUMMINGS, THOMAS H. MARSHALL, JOSIAH CROSBY, FREDERICK BOYDEN.
Stafford District Medical Society,	DAVID T. PARKER.

VERMONT.

Vermont State Medical Society,	CHARLES CLARK.
Vermont Medical College,	GEORGE T. ELLIOT, Jr.
Grafton District Med. Society,	ISRAEL HINCKLEY, HENRY B. BROWN.
Castleton Medical College,	J. PERKINS.

MASSACHUSETTS.

Massachusetts State Med. Society,	HENRY WILLARD, W. M. CORNELL, E. T. EASTMAN, ALEX. T. THOMAS, GEORGE HAYWARD, WINSLOW LEWIS, JEREMY STIMSON, MARTIN ROOT, ANSON HOOKER, JONATHAN W. BEMIS, HORACE RICHARDSON, EPHRAIM BUCK,

Massachusetts State Med. Society,	Benj. E. Cotting, C. P. Fiske, W. H. Page, Edward B. Moore, Jasper H. York, A. Le Baron Monroe, Gilman Kimball, S. G. Burnap, John Geo. Metcalf, Robert T. Davis, Augustine Shurtleff, Joseph Farnum, Benj. Cox, Jr., Jno. C. Dalton, Wm. Workman, Joseph Sargent, Henry Sargent, C. C. Holmes, E. D. Miller, John Ellis Blake, Benjamin Cutter, Francis Leland, Anson P. Hooker, George Choate, Charles W. Fay.
Thurber Medical Association,	Ambrose Eames, Allen C. Fay.
Boston Medical Association,	E. D. G. Palmer, S. L. Sprague.
Boston Society for Medical Observation,	Calvin Ellis, J. N. Borland, Luther Parks, Jr.
Med. Department Harvard University,	D. Humphreys Storer, Ed. H. Clarke.
Massachusetts General Hospital,	J. Mason Warren.
Essex North Medical Society,	Stephen Huse.
Boston Society for Medical Improvement,	George H. Lyman, William W. Lyman, John Homans, Wm. W. Morland.
Berkshire Medical College,	O. S. Root.
Permanent Member,	Levi Folsom.

RHODE ISLAND.

Rhode Island State Med. Society,	JOSEPH MAURAN, ARIEL BALLOU, JAS. H. ELDRIDGE, CHAS. W. PARSONS, DAVID KING.
Providence Medical Association,	W. O. BROWN, GEORGE P. BOKER.
Permanent Member,	USHER PARSONS.

CONNECTICUT.

Connecticut State Medical Society,	J. G. BECKWITH, SAMUEL S. NOYES, JOHN D. FORD, L. N. BEARDSLEY.
New Haven Medical Association,	JOHN K. DOWNS, S. H. TOTTEN.
Hartford Hospital,	MYRON W. WILSON.
Norwich Medical Association,	ASHBEL WOODWARD.
New Haven City Medical Association,	GEORGE E. BUDINGTON, JOHN NICOLL.
New Haven County Med. Society,	P. A. JEWETT, N. B. IVES, H. W. E. MATTHEWS, REYNOLD WEBB, LEONARD J. SANFORD, CHAS. A. LINDSLEY, JOEL CANFIELD, BENJAMIN H. CATTIN.
Litchfield County Med. Society,	SAMUEL T. SALISBURY, JAMES WELSH, WM. W. WELCH.
Fairfield County Med. Society,	ROBT. HUBBARD, DAVID S. BURR.
Middlesex County Med. Society,	GEO. W. BURKE, IRA HUTCHINSON, ELISHA B. NYE.
Med. Institution of Yale College,	JONATHAN KNIGHT, CHARLES HOOKER.
Connecticut State Hospital,	E. H. BISHOP.

New London County Med. Society,	ASHBEL WOODWARD.
Windham County Med. Society,	LEWIS WILLIAMS.
Tolland County Medical Society,	FRANCIS L. DICKINSON, ALDEN SKINNER.
Middlesex Central Med. Assoc.,	DAVID HARRISON.
Permanent Members,	REYNOLD WEBB, GIDEON L. PLATT.

NEW YORK.

New York State Medical Society,	E. W. ARMSTRONG, JOHN E. TODD, EDSON CARR.
Medical Society of Erie County,	JAS. M. NEWMAN.
New York County Med. Society,	ISAAC WOOD, D. MEREDITH REESE, ALFRED C. POST, JOHN SHANKS, J. WARREN, HENRY S. DOWNS, H. D. BULKLEY.
Herkimer County Med. Society,	WM. H. H. PARKHURST, A. F. DOOLITTLE.
Binghampton Academy of Med'ne,	GEO. S. LITTLE.
Madison County Medical Society,	A. L. SAUNDERS.
Bellevue Hospital of New York,	STEPHEN SMITH.
Academy of Medicine,	F. CAMPBELL STEWART, DAVID GREEN, JOHN W. CORSON, J. FOSTER JENKINS, H. WEEKS BROWN, E. B. WARNER, JOSEPH WOOSTER, CHARLES HENSCHEL, S. P. WHITE, JAMES O. POND, JAMES L. PHELPS, J. P. BATCHELDER, J. T. GARRISH, PLINY EARLE, W. N. BLAKEMAN, LEWIS A. SAYRE, WILLIAM ROCKWELL.

Medical Association of Central New York,	JNO. GAY ORTON, R. O. CRANDALL, H. M. EASTMAN.
New York Medical College,	B. FORDYCE BARKER, HORACE GREEN.
Albany Medical College,	ALDEN MARCH.
Buffalo Medical Association,	CHAS. H. WILCOX, FRANK H. HAMILTON.
New York State Emigrant Hosp'l,	THOS. ADDIS EMMET, ERNEST SCHILLING.
Society of German Physicians,	ERNEST KRACKOWIZER.
Oneida County Medical Society,	JOHN MCCALL, N. H. DERING.
Wayne County Medical Society,	C. G. POMROY, J. P. H. DEMING.
Oswego County Medical Society,	CHAS. G. BACON.
Monroe County Medical Society,	JOHN REID, HENRY W. DEAN.
New York Hospital,	JOHN WATSON, JOSEPH M. SMITH.
Geneva Medical College,	FREDK. HYDE,
Richmond County Med. Society,	W. C. ANDERSON.
Broome County Medical Society,	THOMAS JACKSON.
New York Pathological Society,	S. S. PURPLE, JAS. C. HUTCHINSON, THOS. F. COCK, T. C. FINNELL.
New York Medical Association,	JOSEPH A. MORRELL.
New York Ophthalmic Hospital,	MARK STEPHENSON.
Medical Department of the University of Buffalo,	SANFORD B. HUNT, JAMES P. WHITE.
Medical Faculty of the University of the City of New York,	J. T. METCALFE.
Kappa Lambda Society of N. Y.,	THOMAS COCK.
College of Physicians and Surgeons, New York,	ALONZO CLARK.
German Medico-Chirurgical Soc.,	LOUIS BAUER, THEODORE A. TELLKAMPF.
King's County Hospital,	THOMAS TURNER.
King's County Medical Society,	T. ANDERSON WADE.
Statistical Society,	D. S. CONANT.
Westchester County Med. Society,	JAMES D. TRASK.

Permanent Members,	CALEB BUDLONG, HENRY S. WEST, E. H. DAVIS, A. BAKER, Jr., P. B. BROOKS, A. WILLARD, HARVEY JEWETT, J. M. AUSTIN.

PENNSYLVANIA.

College of Physicians of Philadelphia,	ISAAC HAYS, G. B. WOOD, R. A. GIVEN, ED. HARTSHORNE, J. B. BIDDLE, FRANCIS WEST, FRANKLIN BACHE, JNO. NEILL, FRANCIS G. SMITH, Jr., PAUL BECK GODDARD, JOSEPH CARSON, J. RODMAN PAUL.
Pennsylvania State Med. Society,	CHARLES INNES, HENRY CARPENTER, G. EMERSON, DAVID O. MOSSER, JNO. A. MARTIN, ROBERT K. SMITH, JOHN G. KŒHLER, J. M. CONFER, W. W. TOWNSEND.
University of Pennsylvania,	HUGH L. HODGE, SAMUEL JACKSON.
Jefferson Medical College,	JOSEPH PANCOAST, CHARLES D. MEIGS.
Medical Department of Pennsylvania College,	DAVID GILBERT, J. M. ALLEN.
Philadelphia College of Medicine,	ISAAC A. PENNYPACKER, HENRY HARTSHORNE.
Pennsylvania Hospital,	GEORGE W. NORRIS, WILLIAM PEPPER.

Wills Hospital,	S. Littell.
St. Joseph's Hospital,	Alfred Stillé.
Episcopal Hospital,	John J. Reese.
Philadelphia Hospital, Blockley,	J. L. Ludlow, Henry H. Smith.
City Hospital,	J. F. Bird.
Philadelphia County Med. Society,	Robert P. Thomas, Samuel L. Hollingsworth, William V. Keating, Caspar Wister, Benjamin S. Janney, Thomas H. Yardley, D. Francis Condie, D. Paul Lajus, Wilson Jewell, John Bell, Thomas F. Betton, Samuel Jackson, William Byrd Page, Samuel Lewis, Anthony E. Stocker, Wm. H. Klapp, Ellwood Wilson, John Conrey, James V. Emlen, Arnold Naudain, John F. Lamb, Lewis Rodman.
Northern Medical Association,	Levi Curtis, William Mayburry, R. H. Townsend, N. L. Hatfield, J. Henry Smaltz.
Western Clinical Infirmary,	Thomas Hewson Bache.
Philadelphia Dispensary,	James M. Corse.
Chester County Medical Society,	Isaac Thomas, Wilmer Worthington, Alexander K. Gaston, S. A. Ogier.
Delaware County Medical Society,	M. Emanuel, C. J. Morton.

Lancaster City and County Medical Society,	J. B. STUBBS, P. CASSIDY, J. K. RAUB, THOMAS ELLMAKER, ROBERT DUNCAN, W. S. THOMPSON, JOHN REAM.
Lancaster County Hospital,	JOHN L. ATLEE, J. AUG. EHLER.
Huntingdon County Med. Society,	J. M. GEMMILL, J. H. DORSEY.
Medical Society of City of Reading and County of Berks,	FRANK M. HIESTER, P. G. BERTOLET, WM. GRIES, EDWARD WALLACE.
Cambria County Medical Society,	R. M. S. JACKSON.
Bucks County Medical Society,	JOHN DYER, O. P. JAMES.
Lehigh County Medical Society,	CHARLES H. MARTIN.
Schuylkill County Med. Society,	JAS. S. CARPENTER, GEORGE HALBERSTADT.
Montgomery County Med. Society,	HIRAM CORSON, CHARLES SHOEMAKER, JOHN L. FOULKE, WM. CORSON.
Blair County Medical Society,	WM. R. FINLEY.
Philadelphia Association for Medical Instruction,	ADDINELL HEWSON.
Alleghany County Med. Society,	A. M. POLLOCK.
Moyamensing House of Industry,	JACOB DA COSTA.
Northampton County Med. Society,	ROBERT E. JAMES, EDWARD SWIFT, TRAIL GREEN.
York County Medical Society,	JAMES W. KERR.
Philadelphia Med.-Chirurg. Soc.,	HENRY Y. SMITH.
Lebanon County Medical Society,	WILLIAM MOORE GUILFORD.
Mifflin County Medical Society,	ABRAM ROTHROCK.
Permanent Members,	HENRY BOND, GEO. J. ZIEGLER, R. LA ROCHE, B. HORNOR COATES,

Permanent Members,	WINTHROP SARGENT, Jr., W. L. ATLEE, J. D. ROSS, JAS. BRYAN, WM. ASHMEAD, JOHN LOWMAN, ANTHONY HEGER, MORETON STILLÉ, GEORGE FOX, LAURENCE TURNBULL, THOMAS SPENCER, G. W. WIMBLEY, R. E. ROGERS, WILLIAM A. PIPER, ISAAC R. WALKER, J. H. B. MCCLELLAN, CASPAR MORRIS.
Member by Invitation,	W. H. WATSON.

NEW JERSEY.

Medical Society of New Jersey,	ZACHARIAH READ, B. H. STRATTON, R. M. COOPER, LEWIS CONDICT, JAMES B. COLEMAN, J. B. MUNN.
Camden Co. District Med. Society,	A. D. WOODRUFF, ISAAC S. MULFORD.
Camden City Medical Society,	THOS. F. CULLEN.
Cumberland Co. District Med. Society,	ISAAC H. HAMPTON, ENOCH FITHIAN, WILLIAM ELMER.
Mercer Co. District Med. Society,	JOHN H. PHILLIPS, THOMAS J. CORSON.
Hunterdon Co. District Med. Soc.,	JNO. BLANE.
Essex Co. District Medical Society,	LYNDON A. SMITH, GEORGE R. CHETWOOD.
Burlington Co. District Med. Society,	HENRY H. LONGSTREET, GEORGE GOODELL, I. P. COLEMAN.

Hudson Co. District Medical Society,	CHARLES COOK, JOHN THOMSON.
Sussex Co. District Med. Society,	A. D. MORFORD, JOHN R. STUART.
Gloucester Co. District Med. Society,	JOHN R. SICKLER, CHARLES F. CLARK.
Warren Co. District Med. Society,	P. F. BRAKELEY.
Permanent Members,	O. H. TAYLOR, S. W. BUTLER, QUINTON GIBBON.

DELAWARE.

Delaware State Medical Society,	ROBERT H. CLARK, HENRY F. ASKEW, JOHN MERRITT, GOVE SAULSBURY, R. R. PORTER.
New Castle County Med. Society,	JAMES COUPER, J. W. THOMSON, JOHN P. WALES.
Wilmington Medical Association,	WM. R. BULLOCK, JAMES F. WILSON.
Kent County Medical Society,	ISAAC JUMP, WAITMAN JONES, JAMES R. MITCHELL.
Permanent Member,	L. P. BUSH.

MARYLAND.

Baltimore Infirmary,	RICHARD H. THOMAS.
Medical and Chirurgical Faculty of Maryland,	PEREGRINE WROTH, JOEL HOPKINS, SAMUEL P. SMITH, A. M. WHITE, WASHINGTON DUVALL, CHARLES MACGILL, CHRISTOPHER JOHNSTON, CHARLES FRICK, JOHN K. SAPPINGTON, J. GILLMAN, SAMUEL K. HANDY, JAMES BORDLEY,

Medical and Chirurgical Faculty of Maryland,	WILLIAM B. CRANE, F. E. B. HINTZE, GEORGE W. LAWRENCE, WALTER F. BELT, JOHN F. MONMONIER.
Medical and Surgical Society of Baltimore,	A. SNOWDEN PIGGOTT, WILLIAM H. BALTZELL, D. A. O'DONNELL.
St. Mary's Co. Med. Association,	THOMAS MATTHEWS.
University of Maryland,	GEORGE W. MILTENBERGER.
Talbot County Medical Society,	J. E. M. CHAMBERLAINE, THOMAS W. MARTIN, EDW. M. HARDCASTLE.
Pathological Society of Baltimore,	F. DONALDSON, WM. H. DAVIS, WILLIAM RILEY.
Kent County Medical Society,	THOMAS C. KENNARD.
Permanent Member,	JOHN HANSON BRISCOE.

DISTRICT OF COLUMBIA.

National Medical College,	LEWIS H. STEINER, THOMAS MILLER.
Washington City Infirmary and Hospital,	B. JOHNSON HELLEN.
Medical Society of District of Columbia,	GRAFTON TYLER, ALEX. J. SEMMES, JNO. C. RILEY. HARVEY LINDSLEY, JAMES C. HALL, C. BOYLE, G. M. DOVE, W. J. C. DUHAMEL.
Georgetown Med. College and Med. Assoc. of District of Columbia,	J. E. MORGAN.

VIRGINIA.

State Medical Society of Virginia,	PETERFIELD TRENT, J. LEWIS DORSET, P. C. GOOCH, J. G. CABELL, J. M. HURT.

Medical College of Virginia,	CHARLES BELL GIBSON, B. R. WELLFORD.
Winchester Medical College,	ALFRED B. TUCKER, HUGH H. MCGUIRE.
Prince Edward County Medical Society,	JAMES LYLE, A. S. DILLON.
Medical Department University of Virginia,	J. L. CABELL, B. W. ALLEN.
Petersburg Medical Faculty,	JOSEPH W. SMITH, J. F. PEEBLES, PITMAN C. SPENCER.
Permanent Member,	WILLIAM B. COCHRAN.
Member by Invitation,	P. F. BROWN.

NORTH CAROLINA.

North Carolina State Med. Society,	O. F. MANSON, N. J. PITTMAN, CHARLES F. DEWEY, J. R. THOMPSON.
Edgecombe County Med. Society,	B. W. MABREY.

SOUTH CAROLINA.

South Carolina Med. Association,	T. S. ROBERTSON, J. F. M. GEDDINGS, N. H. GIBBES, W. W. MOBLEY, R. F. MICHEL, JOHN L. DAWSON, ROBERT S. BAILEY, C. HAPPOLDT, AMORY COFFIN, WILLIAM C. HORLBECK.
Medical Society of South Carolina,	P. C. GAILLARD, OCTAVIUS WHITE.
Medical College of the State of South Carolina,	THOMAS G. PRIOLEAU, HENRY R. FROST.
Columbia Medical Society,	SAMUEL FAIR.
Charleston Medical Institute,	F. M. ROBERTSON.
Permanent Member,	R. A. KINLOCK.

GEORGIA.

Savannah Medical College,	RICHARD D. ARNOLD.

ALABAMA.

Alabama State Med. Association,	WILLIAM M. BOLING, P. H. CABELL, A. DENNY.
Permanent Member,	S. W. CLANTON.

TENNESSEE.

Tennessee State Medical Society,	R. C. FOSTER.
University of Nashville,	J. BERRIEN LINDSLEY.
Memphis Medical College,	JNO. MILLINGTON.
Permanent Member,	FRANK A. RAMSEY.

KENTUCKY.

Covington Medical Society,	C. J. BLACKBURN.
Louisville Marine Hospital,	J. C. JOHNSTON.
University of Louisville,	T. G. RICHARDSON.
Kentucky State Medical Society,	DAVID D. THOMSON, J. T. BRADFORD.
Kentucky School of Medicine,	JOSHUA B. FLINT, A. B. COOK.
Permanent Member,	WALTER A. NORWOOD.

OHIO.

Ohio State Medical Society,	LEVI D. SHEETS, ISAAC C. WILLIAMS, R. HILLS, B. B. LEONARD, J. F. POTTER, EPHRAIM GASTON, R. R. MCMEENS, T. H. BAKER, J. D. COTTON, ABEL CAREY, A. DUNLAP, JOHN G. F. HOLSTON.
Miami Medical College,	R. D. MUSSEY, C. G. COMEGYS.

Erie County Medical Association,	DANIEL TILDEN.
Clinton County Medical Society,	T. W. MCARTHUR.
Medico-Chirurgical Society of Cincinnati,	ALEX. M. JOHNSTON, WM. CLENDENIN.
Wayne County Medical Society,	W. S. BATTLES.
Commercial Hospital of Cincinnati,	ASBURY EVANS.
Medical College of Ohio,	THOMAS WOOD.
Starling Medical College,	S. M. SMITH, JOHN DAWSON.
Cincinnati Medical Society,	J. P. WALKER, O. D. NORTON.
Permanent Member,	THOMAS W. GORDON.
Members by Invitation,	CALEB JONES, A. M. REED.

INDIANA.

Union Medical Society, Northern Indiana,	M. M. LATTA.
Indiana State Medical Society,	JOEL PENNINGTON, THOMAS W. FLORER, E. MURPHY.
Kosciusko County Medical Society,	WILLIAM E. SARBER.

ILLINOIS.

Rush Medical College,	N. S. DAVIS, J. V. Z. BLANEY.
Cooke County Medical Society,	J. W. FREER.
La Salle County Medical Society,	JOSEPH STOUT.
Illinois State Medical Society,	DANIEL BRAINARD, A. H. LUCE, S. W. NOBLE, RUDOLPHUS ROUSE.
Permanent Member,	WILLIAM ROBINSON.

MISSOURI.

St. Louis Medical College,	CHARLES A. POPE.
St. Louis Medical Society,	L. P. PERRY, T. E. MASSIE, E. S. LEMOINE, E. F. SMITH.

IOWA.

Med. Department Iowa University, J. E. SANBORN.

WISCONSIN.

Wisconsin State Medical Society, CLARK G. PEASE, ALFRED L. CASTLEMAN, J. J. BROWN.

Milwaukie Medical Association, J. B. DOUSMAN.

Milwaukie Medical Society, J. K. BARTLETT.

MICHIGAN.

Michigan State Medical Society, N. D. STEBBINS, H. TAYLOR, J. H. BEECH, SAMUEL M. AXFORD, AARON L. LELAND.

Detroit Medical Society, WM. BRODIE, ZINA PITCHER.

University of Michigan, A. B. PALMER.

Permanent Member, ISAAC PADDACK.

UNITED STATES NAVY.

T. DILLARD,
JAMES M. GREENE,
SAMUEL BARRINGTON,
G. R. B. HORNER.

FOREIGN.

American Medical Society of Paris, WALTER F. ATLEE.

Total, 538

On motion of Dr. BIDDLE, of Pennsylvania, it was resolved that the President, Dr. POPE, be now requested to deliver his annual address.

Upon the conclusion of the address, it was, on motion of Dr. BIDDLE, unanimously *Resolved*, That the thanks of the Association be tendered to the President for his able and interesting address, and that he be requested to furnish a copy of it to the Committee

of Publication; Dr. DAVIS, one of the Vice-Presidents, putting the question upon the resolution.

Dr. HAYS, of Pennsylvania, on behalf of the Committee of Arrangements, having stated that the plans adopted by the Committee for the entertainment of the delegates would require the Association to hold its sessions from 9 o'clock A. M. to 3 o'clock P. M., with a recess from 12 to 1 o'clock, proposed that such should be the order of meeting; which proposition was, on motion, agreed to.

Dr. H. then stated that it was proposed by the Committee of Arrangements that the members of the Association should visit *this* afternoon (*Tuesday*, May 1st) the "Pennsylvania Hospital for the Insane;" on *Wednesday* afternoon, Girard College and Fairmount; on *Thursday* afternoon, Philadelphia Hospital, Blockley; on *Friday* afternoon, the Asylum for the Blind; and that arrangements had been made for conveying the members to those institutions.

Dr. H. further stated that the Mayor of the City invited the Association to a reception at "Independence Hall," at noon, on Wednesday; and that invitations had been extended to the members to visit, at their convenience, the principal public institutions of the city, to all of which the cards of membership of the Association would secure admission.

On motion of Dr. BIDDLE, it was *Resolved*, That a committee, to consist of one delegate from each State represented, to be chosen by the collective delegations of the respective States, be now appointed, to nominate officers for the present year.

On motion, a recess of fifteen minutes was taken, to enable the delegations to assemble for the purpose just named.

At the expiration of the recess, the Association was called to order, and the different State delegations then reported their choice, respectively, of delegates to serve on the Nominating Committee, which was constituted as follows:—

A. J. FULLER, Maine,
SILAS CUMMINGS, N. Hampshire,
G. T. ELLIOT, Jr., Vermont,
C. P. FISKE, Massachusetts,
JOS. MAURAN, Rhode Island,
P. A. JEWETT, Connecticut,
JOHN MCCALL, New York,
J. B. BIDDLE, Pennsylvania,
LEWIS CONDICT, New Jersey,
JAMES W. THOMSON, Delaware,
CHARLES MCGILL, Maryland,
THOMAS MILLER, D. of Columbia,
B. R. WELLFORD, Virginia,
O. F. MANSON, North Carolina,
P. C. GAILLARD, South Carolina,
RICHARD D. ARNOLD, Georgia,
P. H. CABELL, Alabama,
J. BERRIEN LINDSLEY, Tennessee.

C. J. BLACKBURN, Kentucky,
R. HILLS, Ohio,
JOEL PENNINGTON, Indiana,
J. V. Z. BLANEY, Illinois,
A. B. PALMER, Michigan,
L. P. PERRY, Missouri,
J. E. SANBORN, Iowa,
J. B. DOUSMAN, Wisconsin,
THOS. DILLARD, U. S. Navy.

Dr. CONDIE, of Pennsylvania, offered the following resolution:—

Resolved, That all permanent members, who, in consequence of not having received, in due time, notification of their indebtedness, have had their names stricken from the roll, but who have since paid, or may hereafter pay their assessment, shall have their names restored to the list of permanent members, to which,

Dr. WATSON, of New York, offered the following as an amendment:—

Resolved, That no permanent member of this Association shall be deprived of his privileges as a permanent member on account of failing to contribute to the funds at any meeting at which he is not in attendance.

After considerable discussion of the subject, Dr. WHITE, of New York, offered the following resolution, which was adopted:—

Resolved, That the whole subject, embraced in the foregoing two resolutions, be referred to a committee of three, to report, at their earliest convenience, their interpretation of the constitution upon the point in question, and to recommend such action, if any be required, as they may deem expedient in the premises.

The Chair appointed as the Committee, Dr. WHITE, of New York, Dr. WATSON, of New York, and Dr. CONDIE, of Pennsylvania.

Dr. F. C. STEWART, of New York, offered the following resolution, which, on motion of Dr. BOYLE, of D. C., was laid upon the table:—

Resolved, That the Nominating Committee be instructed to present the names of three candidates for the office of President, and that the election of President be by ballot, the name receiving the smallest number of votes on the first ballot, to be withdrawn.

On motion of Dr. J. L. ATLEE, of Pennsylvania, it was

Resolved, That the Nominating Committee be instructed to recommend the place for the next annual meeting of the Association.

Invitations to this effect were extended, respectively, by Dr. PITCHER, of Michigan, on behalf of the Profession of Detroit; by Dr. FOSTER, of Tennessee, on behalf of that of Nashville; and by Dr. BRAINARD, of Illinois, on behalf of that of Chicago, upon

whose motion the invitations presented were referred to the Nominating Committee.

On motion of Dr. FRANK A. RAMSEY, of Tennessee, it was

Resolved, That so much of the President's Address as refers to the subject of the place and time of meeting of the Association, be referred to the Nominating Committee.

Dr. D. D. THOMSON, of Kentucky, moved that the regular order of business be suspended, in order to take up the amendments to the Constitution offered at the last annual meeting.

Several members objected, and the motion was lost.

The President stated that the next business in order was the reception of "members by invitation."

On motion of Dr. CONDIE, of Pennsylvania, it was

Resolved, That all nominations of members by invitation, be referred to the Committee of Arrangements.

The President stated the next order of business to be the reception of Reports from the different committees appointed for the purpose at the last annual meeting.

Pending this call, invitations to the Association from the Director of the U.S. Mint; from the Secretary of the "Academy of Natural Sciences of Philadelphia;" from Prof. WAGNER, of the "Wagner Free Institute of Science;" and from Dr. G. R. B. HORNER, Surgeon of the Philadelphia Navy Yard, to visit the different places named, were read by the Secretary; and, on motion of Dr. ROUSE, it was

Resolved, That the several invitations thus extended be accepted, and the thanks of the Association returned for them.

Dr. R. LA ROCHE, of Pennsylvania, Chairman of the Committee on "Prize Essays and Volunteer Communications," made the following Report:—

"The Committee on Prize Essays and Volunteer Communications report that the essays received by them were six in number. These the Committee have submitted to a patient and careful examination, and with pleasure acknowledge that the greater number are written with ability, and evince a commendable degree of familiarity with the subject under consideration. But, while freely admitting thus much, and expressing the opinion that the essays in question, if placed in a printed form before the public, would do great credit to their respective authors, the Committee have, after mature deliberation, concluded that only one among the number to which their attention was called, presented those qualities which, in their opinion,

should entitle essays to the award of the prizes offered by the Association.

"The Committee have, in consequence, decided on awarding but one prize. The essay selected is entitled 'Statistics of Placenta Prævia.'

"It is one of considerable merit. It evinces an unusual degree of industry in the collection, and an uncommon talent in the arrangement and classification of facts, from which the author draws practical deductions of high value. The essay is accompanied with extensive tables of cases, which insure its completeness and enhance in no small degree its usefulness.

"The essay bears the following motto:—

'HOMINES NULLÂ RE PROPRIUS AD DEOS ACCEDUNT, QUAM HOMINIBUS SALUTEM DANDO.'

(Signed) R. LA ROCHE, Chairman.
ISAAC HAYS,
ALFRED STILLÉ,
J. B. BIDDLE,
G. W. NORRIS,
JOSEPH CARSON,
JOSEPH LEIDY."

The seal of the letter accompanying it, which was indorsed with the same motto as that which the essay itself bore, was then broken, and the name of the author declared to be Dr. JAMES D. TRASK, of White Plains, Westchester County, New York.

On motion of Dr. CONDIE, of Pennsylvania, it was

Resolved, That the essay be referred to the Committee of Publication.

The reception of special reports being again in order, the following Committees were called upon, but no reports were received from them:—

1. Dr. WORTHINGTON HOOKER, of New Haven.—On the Epidemics of New England and New York.

2. Dr. JOHN L. ATLEE, of Lancaster, Pennsylvania.—On the Epidemics of New Jersey, Pennsylvania, Delaware, and Maryland.

3. Dr. W. D. HASKINS, of Richmond, Virginia.—On the Epidemics of Virginia and North Carolina.

4. Dr. D. J. CAIN, of Charleston, South Carolina.—On the Epidemics of South Carolina, Florida, Georgia, and Alabama.

5. Dr. W. L. SUTTON, of Georgetown, Kentucky.—On the Epidemics of Tennessee and Kentucky.

An abstract of Dr. REYBURNS' report "On the Prevalent Diseases of Missouri, Illinois, Wisconsin, and Iowa," was read, and the report itself, on motion, was referred to the Committee of Publication.

The regular order of business was again suspended, in order to receive the report of the Committee, to whom had been referred certain resolutions touching the privileges, in regard to assessment, of permanent members. Dr. WHITE, on behalf of that Committee, reported the following resolutions, which, on motion, were adopted:—

Resolved, That no permanent member, who is not present at a meeting of the Association, shall be required to pay the annual assessment; but no such permanent member shall be entitled to receive a copy of the printed *Transactions* unless he pay into the treasury a sum not less than the annual assessment paid by the delegates and permanent members in attendance; and that all the names of permanent members that have been left off the published list, be reinserted therein in the next volume of *Transactions*.

Resolved, That no assessment whatever shall be made against members by invitation, but that they also shall be entitled to a copy of the printed *Transactions* by paying the sum assessed upon delegates in attendance.

The reception of the special reports being again in order, the following committees were called upon. Excuse, by letter or personally, was made by some of the chairmen; no replies were received from others, and some reports were temporarily passed over.

6. Dr. GEORGE MENDENHALL, of Cincinnati, Ohio.—On the Epidemics of Ohio, Indiana, and Michigan.

7. Dr. E. D. FENNER, of New Orleans, Louisiana.—On the Epidemics of Louisiana, Mississippi, Arkansas, and Texas.

8. Dr. JAMES JONES, of New Orleans, Louisiana.—On the Mutual Relations of Yellow and Bilious Remittent Fever.

9. Dr. D. F. CONDIE, of Philadelphia, Pennsylvania.—On the Causes of Tuberculous Disease.

10. Dr. JOSEPH LEIDY, of Philadelphia, Pennsylvania.—On Diseases of Parasitic Origin.

11. Dr. A. P. MERRILL, of Memphis, Tennessee.—On the Physiological Peculiarities and Diseases of Negroes.

12. Dr. JOSEPH N. MCDOWELL, of St. Louis, Missouri.—On Statistics of the Operation for the Removal of Stone in the Bladder.

13. Dr. F. PEYRE PORCHER, of Charleston, South Carolina.—On

the Toxicological and Medicinal Properties of our Cryptogamic Plants.

14. Dr. DANIEL BRAINARD, of Chicago, Illinois.—On the Constitutional and Local Treatment of Carcinoma.

15. Dr. GEORGE ENGLEMAN, of St. Louis, Missouri.—On the Influence of Geological Formation on the Character of Disease.

16. Dr. HENRY TAYLOR, of Mount Clemens, Michigan.—On Dysentery.

17. Dr. HORACE GREEN, of New York.—On the Use and Effect of Applications of Nitrate of Silver to the Throat, either in Local or General Disease.

18. Dr. P. CLAIBORNE GOOCH, of Richmond, Virginia.—On the Administration of Anæsthetic Agents during Parturition.

19. Dr. CHARLES HOOKER, of New Haven, Connecticut.—On the Diet of the Sick.

20. Dr. E. R. DABNEY, of Clarksville, Tennessee.—On Certain Forms of Eruptive Fevers prevalent in Middle Tennessee.

The report, by Dr. SANFORD B. HUNT, of Buffalo, New York, on the "Hygrometrical States of the Atmosphere in Various Localities, and its Influence on Health," having been presented, Dr. WHITE, of New York, moved that this report, along with the others from special committees, be referred, without being read, to the Committee of Publication, with the thanks of the Association to the authors, respectively, of said reports. This motion gave rise to considerable debate upon the general question of the expediency and propriety of thus summarily disposing of special reports made to the Association by Standing Committees, and it was finally laid upon the table.

Dr. HAYS, of Pennsylvania, on behalf of the Committee of Arrangements, announced that omnibuses would be in waiting at 4½ P. M. to convey delegates and the ladies of their parties to the "Pennsylvania Hospital for the Insane," and reminded the members of the Association that they were invited in the evening to the houses of Drs. H. L. HODGE, G. W. NORRIS, and F. BACHE.

The hour for terminating the session having then arrived, the Association adjourned.

WEDNESDAY, *May* 2.

The Association met at 9 o'clock A. M., the President in the chair.

The minutes of yesterday's meeting were read and approved.

On motion of Dr. CONDIE, it was

Resolved, That the Secretaries of this Association be requested to afford every facility possible to the reporters of the public press, to enable them to furnish full and accurate reports of the transactions.

Dr. J. L. ATLEE, of Pennsylvania, on behalf of a committee of which he was chairman, announced to the Association the completion of the stone (which was deposited, for exhibition, in a lower room of the building) intended as the contribution of the Association to the "Washington Monument." Dr. A. gave a brief history of the source whence the design for the stone was derived, and also of the execution of the work, and took occasion to solicit further subscriptions from members of the Association, in order to remunerate more adequately the labors of the young artist who had produced the work, Mr. John Augustus Beck, of Lancaster, Pennsylvania.

The sculpture on the stone represents the scene of Hippocrates rejecting the tempting presents brought to him by the Ambassadors of Artaxerxes, King of Persia, in the words: "Tell your master, I am rich enough; honor will not allow me to succor the enemies of Greece."

On motion of Dr. SAUNDERS, of New York, it was

Resolved, That no member be allowed to speak to any question until his name and residence shall first have been announced to the Association.

Dr. HAYS then read a list of several delegates and members who had registered their names since the roll was called on the previous day, and stated the total number of those present to be 473. He also remarked that from present indications, the meeting of this year would probably be the largest one which had ever been held by the Association.

Dr. J. B. BIDDLE, of Pennsylvania, Chairman of the Committee of One from each State appointed to nominate officers of the Association for the present year, reported, as the unanimous recommendation of the Committee, the following names:—

PRESIDENT,

GEORGE B. WOOD, *Pennsylvania.*

VICE-PRESIDENTS,

WM. M. BOLING, *Alabama,* DANIEL TILDEN, *Ohio,*
D. HUMPHREYS STORER, *Massachusetts,* GRAFTON TYLER, *D. C.*

SECRETARIES,

FRANCIS WEST, *Pennsylvania,* R. C. FOSTER, *Tennessee.**

TREASURER,

CASPAR WISTER, *Pennsylvania.*

Committee of Publication.—FRANCIS G. SMITH, of Pennsylvania, Chairman; CASPAR WISTER, of Pennsylvania; FRANCIS WEST, of Pennsylvania; R. C. FOSTER, of Tennessee;* SAMUEL L. HOLLINGSWORTH, of Pennsylvania; H. F. ASKEW, of Delaware; SAMUEL LEWIS, of Pennsylvania.

The Committee also recommended, but not unanimously, Nashville, Tennessee, as the next place of meeting of the Association.

Dr. POST, of New York, offered the following resolution, which was adopted:—

Resolved, That the Report of the Nominating Committee be divided, so that the election of officers may be considered separately from the choice of place at which to hold the next annual meeting.

Dr. ROGERS, of Pennsylvania, moved that so much of the Report as refers to the nomination of officers be adopted, which motion was carried.

Dr. J. P. WHITE, of New York, offered the following resolution, which was adopted:—

Resolved, That the Chair appoint five members as a committee, to inform the President and Vice-Presidents elect of the choice of the Association, and to conduct them to their respective seats. The Chair appointed as the committee under this resolution, Dr. J. M. SMITH, of New York, Dr. BLACKBURN, of Kentucky, Dr. HOMANS, of Massachusetts, Dr. ROUSE, of Illinois, and Dr. FROST, of South Carolina.

* In accordance with the rule of selecting the secretary from the next place of meeting, the name of R. C. Foster, as Secretary and as a member of the Committee of Publication, was subsequently substituted by that of William Brodie, of Michigan.

The newly elected officers were then conducted to their seats by the Committee.

The President, Dr. WOOD, on taking the chair, expressed his sincere thanks for the honor conferred upon him, assuring the Association of the deep interest he had always felt in the objects proposed to be accomplished by it, and pledging his best efforts to secure its permanency and success.

Dr. POST, of New York, offered the following resolution :—

Resolved, That the next meeting of the Association be held in the city of Washington; to which Dr. WATSON, of New York, proposed as an amendment, that the city of Detroit be substituted for the city of Washington.

Dr. BIDDLE, of Pennsylvania, moved a suspension of the rules, for the purpose of introducing the following resolution, which was adopted :—

Resolved, That the thanks of the Association be tendered to the retiring President, Dr. Charles A. Pope, for his able and efficient discharge of the duties of presiding officer, during his incumbency.

Dr. L. A. SMITH, of New Jersey, then moved that the report of the Nominating Committee, recommending Nashville as the next place of meeting, be adopted.

Dr. BUSH, of Delaware, moved that the resolution proposing Washington City as a place of meeting, be laid on the table, with the view of considering the remainder of the report of the Nominating Committee; whereupon, it was

Resolved, That all motions naming different places at which to hold the next annual meeting of the Association be laid upon the table, in order to take up the report of the Nominating Committee, so far as it has not already been adopted.

Dr. PALMER, of Michigan, then moved that *Detroit* be substituted for *Nashville* in the report; pending which motion, Dr. F. C. STEWART, of New York, moved that the selection of the next place of meeting be referred to a special committee of five, to be appointed by the Chair, which motion having been lost, it was finally

Resolved, That Detroit be substituted for Nashville in the report of the Nominating Committee; and then the original recommendation of the Committee, with this amendment, and the substitution, also, of the name of Dr. WILLIAM BRODIE, of Michigan, for that of Dr. R. C. FOSTER, of Tennessee, who resigned the secretaryship when the place of meeting was changed, was adopted.

Dr. CALEB JONES, of Ohio, was made a "member by invitation."

Dr. HUNT then read portions of his report on the "Hygrometrical States of the Atmosphere in Various Localities, and its Influence on Health," and, on motion, the report itself was referred to the Committee of Publication.

Pending the reading of the report, which was seriously interrupted by the loud conversation of members, it was unanimously

Resolved, That all the desultory conversation of members be done down stairs.

On motion of Dr. HINTZE, of Maryland, it was

Resolved, That a committee, consisting of one delegate from each State, be appointed by the Chair, to use their influence with the Railroad and Steamboat Companies, to issue commutation-tickets to the delegates of the American Medical Association and their immediate families, who may design attending the meeting of the Association in May, 1856.

Dr. REESE, of New York, moved the reconsideration of the motion which had just been carried, but the Association refused to reconsider it.

The following were appointed the Committee, under Dr. HINTZE's resolution:—

E. R. PEASLEE, Maine,
JOSIAH CROSBY, New Hampshire,
J. PERKINS, Vermont,
J. HOMANS, Massachusetts,
JOSEPH MAURAN, Rhode Island,
P. A. JEWETT (*Chair'n*), Conn.,
JAMES P. WHITE, New York.
FRANCIS WEST, Pennsylvania,
LYNDON A. SMITH, New Jersey,
JAMES W. THOMSON, Delaware,
F. E. B. HINTZE (*Sec.*), Maryland,
GRAFTON TYLER, Dis. of Columbia,
B. R. WELLFORD, Virginia,
O. F. MANSON, North Carolina,
R. F. MICHEL, South Carolina,
RICHARD D. ARNOLD, Georgia,
WILLIAM M. BOLING, Alabama,
J. B. LINDSLEY, Tennessee,
C. J. BLACKBURN, Kentucky,
DANIEL TILDEN, Ohio,
RUDOLPHUS ROUSE, Illinois,
CHARLES A. POPE, Missouri,
J. E. SANBORN, Iowa,
J. R. BARTLETT, Wisconsin,
ZINA PITCHER, Michigan.

Dr. HINTZE, of Maryland, offered the following resolution:—

Resolved, That the thanks of the "American Medical Association" be tendered to the President and Directors of the Philadelphia, Wilmington, and Baltimore Railroad Company, for their liberality in issuing commutation-tickets to delegates of the Association; which, after the failure of a motion by Dr. L. A. SMITH, of New Jersey, to lay it on the table, was carried.

The reading of special reports being resumed, Dr. FRANK H.

HAMILTON, of New York, presented an abstract of his report on the "Frequency of Deformities in Fractures," accompanied by some remarks upon the subject generally, as well as upon the objects particularly arrived at in his investigations.

The report, on motion, was referred to the Committee of Publication.

An invitation from Prof. HART, of the High School, to visit that institution, was presented to the Association, and, on motion of Dr. JUMP, it was accepted, and the Secretary requested to return to Prof. HART the thanks of the Association, and to inform him that the members would be happy to pay the visit on Thursday, at 12 M.

Dr. HOOKER, of Connecticut, then read his report upon the "Diet of the Sick," which was referred to the Committee of Publication.

Dr. BIDDLE, of Pennsylvania, offered the following resolution, which was adopted:—

Resolved, That the thanks of the Association are tendered to Drs. DAVIS, WRAGG, GREEN, and FENNER, late Vice-Presidents of the Association, to Dr. E. S. LEMOINE, the retiring Secretary, and to Dr. ISAAC WOOD, the retiring Treasurer, for the able and faithful manner in which their respective duties have been discharged by them.

[The hour of 12 M., the time appointed for the reception of the Association in "Independence Hall" by the Mayor of the City, having arrived, the Association in a body, attended by its officers, proceeded for the purpose to the "State House," where a large crowd had already assembled to witness the ceremony.]

The Association reassembled at 1 o'clock, after the reception in "Independence Hall," the President, Dr. WOOD, in the chair.

On motion of Dr. DAVIS, of Illinois, it was

Resolved, That the thanks of the Association be returned to the Mayor of the City of Philadelphia, for the very cordial reception extended to it in "Independence Hall," and that a copy of his very eloquent address, with that also of the Chairman of the Committee of Arrangements, be requested for publication, to accompany the *Transactions* of the Association.

On motion of Dr. ASKEW, of Delaware, the rules of order were suspended for the purpose of introducing the following preamble and resolutions, offered by Dr. J. W. THOMSON, of Delaware, which, on motion of Dr. ASKEW, were ordered to lie on the table, and be made the special order for to-morrow morning, at 10 o'clock:—

Whereas, Few subjects of greater interest and importance could be presented to the consideration of the American Medical Association, now representing most of the States and Territories of the Union, than the attainment of a correct medical topography of each, with a history of its prevailing diseases, and most successful treatment of the same, therefore be it

Resolved, That with this view and conviction, this Association appoint a special committee for each State and Territory represented, of —— members, whose duty it shall be to report upon its medical topography, epidemic diseases, and the most successful treatment thereof, and that the same shall continue to hold their office for three years.

Resolved, That, as other States and Territories, not now represented, become so by delegates duly appointed to this National Association, similar committees shall be appointed for like purposes, and that they also shall hold their office for three years.

Resolved, That in the appointment of gentlemen of education and experience in the affairs of their own State, we have the best guarantee that the important objects we seek will be more satisfactorily accomplished, and the profession as well as the public interest thereby better served.

Resolved, That the committees heretofore appointed by this Association, at its session in Charleston, for a similar object, be and the same are hereby discharged.

Invitations from the Board of Health to visit the Lazaretto Station, at Tinicum, and City Hospital, on Coates Street, and from F. LANGENHEIM, to visit his Stereoscopic Diorama, were received, and, on motion of Dr. BLACKBURN, of Kentucky, accepted.

Dr. EARLE, of New York, presented and read the report of the Committee of Publication, which was accepted, and the following preamble and resolution appended to it were, on motion, adopted:—

"In view of the delay in publication which is liable to be occasioned by the reference to the Committee of Publication, of reports and other papers, of which abstracts alone are presented to the Association, the Committee would recommend for adoption the following resolution :—

"*Resolved*, That hereafter, beginning with the session for 1856, no report or other paper shall be entitled to publication in the volume for the year in which it shall be presented to the Association, unless it be placed in the hands of the Committee of Publication on or before the first of June."

Dr. BIDDLE, of Pennsylvania, offered the following resolution, which was adopted:—

Resolved, That the thanks of the Association are eminently due to the Committee of Publication for the faithful and highly satisfactory manner in which their arduous and responsible duties have been discharged.

Dr. WOOD, of New York, presented his report as Treasurer of the Association, and also his account properly audited, which, on motion of Dr. CONDIE, of Pennsylvania, were accepted, and referred to the Committee of Publication.

On motion of Dr. WATSON, of New York, it was

Resolved, That one thousand dollars be appropriated to defray the expenses incurred by the Committee in preparing the stone for the Washington Monument, and that the balance beyond the money already collected by the Committee necessary to make up the said sum, be drawn from the funds in the treasury prior to the opening of the present session.

Resolved, also, That Dr. ATLEE, Chairman of the Committee, be authorized to draw upon the Treasurer for the sum necessary to make up the aforesaid balance.

The regular order of business, the reception of reports of Standing Committees, was then resumed.

On motion of Dr. DAVIS, of Illinois, it was

Resolved, That the Committee on the "Excretions as an Index to the Organic Changes going on in the System," be continued.

An abstract of the report on Scrofula, sent by the Chairman, Dr. W. H. BYFORD, of Evansville, Indiana, was read by the Secretary, and the report itself referred to the Committee of Publication.

Dr. N. S. DAVIS, of Illinois, then read his report on the "Nutritive Qualities of Milk, and the Influence produced thereon by Pregnancy and Menstruation in the Human Female," and also on the question "whether there is not some mode by which the nutritive constituents of milk can be preserved in their purity and sweetness, and furnished to the inhabitants of cities in such quantities as to supersede the present defective and often unwholesome modes of supply?" which, on motion, was referred to the Committee of Publication, and the Committee upon the subject continued.

The following preamble and resolutions, offered by Dr. W. J. C. DUHAMEL, of Washington, D. C., were, on motion, adopted:—

Whereas, The cause of humanity, and a due regard to public health, imperatively demand the speedy enactment of further and more stringent quarantine laws to prevent the spread of infectious

diseases through our country; and whereas, distinguished legislators have co-operated with the medical profession in bringing this important subject to the attention of Congress, therefore

Resolved, That, warmly approving of the bill introduced at the last session of Congress (and yet pending), to prevent sickness and mortality on shipboard, we cordially tender to the honorable Senators of the Special Committee, who so ably and earnestly advocated the measure, this expression of our sincere thanks for their unwearied exertions in behalf of the bill framed after the manner recommended by this Association, and yet indulge in the gratifying hope that their efforts in the cause of public welfare and of suffering humanity will be crowned with success.

Resolved, That the aforesaid preamble and resolutions be forwarded by the officers of the Association, to the authorities at Washington.

Dr. HAYS, of Pennsylvania, on behalf of the Committee of Arrangements, announced that omnibuses would be in waiting at a quarter past 4 o'clock P. M., to convey the members of the Association and the ladies of their parties to Girard College, and afterwards to Fairmount.

THURSDAY, *May* 3.

The Association met at 9 A. M., the President in the chair.

The minutes of the last meeting were read and approved.

The President stated that it had been usual to refer the appointment of the various Standing Committees to the Committee on Nominations; whereupon, on motion of Dr. WATSON, of New York, it was

Resolved, That these appointments accordingly be referred to that Committee.

A communication from Dr. REYBURN, of Mississippi, suggesting that the district, composed of Missouri, Illinois, Wisconsin, and Iowa, be divided, and also offering his resignation as Chairman of the Committee appointed to report upon the Epidemics of those States, was read, and on motion of Dr. ASKEW, of Delaware, it was

Resolved, That so much of said communication as refers to the division of districts, be referred to the Committee on Nominations, and that the resignation of Dr. REYBURN be accepted.

Dr. HAYS, Chairman of the Committee of Arrangements, presented an invitation from the Principal and Managers of the "Pennsylvania Training School for Idiotic and Feeble-minded Children," to visit that Institution on Friday afternoon next. The invitation was accepted, and the thanks of the Association duly returned.

The Association then proceeded to the consideration of the reports of the Special Committees.

A letter from the Chairman of the Committee on the "Microscopical Investigation of Malignant Tumors," Dr. E. B. HASKINS, of Tennessee, was read, stating that he had not the means of carrying out the object proposed, and asking to be discharged, which was agreed to.

The following committees were called on, but no reports were received from them:—

Dr. GEORGE R. GRANT, of Memphis, Tennessee.—On the Sulphate of Quinia as a Remedial Agent in the Treatment of Fevers.

Dr. R. R. McILVAINE, of Cincinnati, Ohio.—On the Study of Pathology at the Bedside.

Dr. E. S. COOPER, of Peoria, Illinois.—On Orthopædic Surgery.

Dr. ANDREW F. JETER, of Palmyra, Missouri.—On the Modus Operandi of the Envenomed Secretions of Healthy Animals.

Dr. SAMUEL M. SMITH, of Columbus, Ohio.—On Insanity.

Dr. R. LA ROCHE, of Philadelphia, Pennsylvania.—On the Jaundice of Yellow Fever, in its Diagnostical and Prognostical Relations.

Dr. CHARLES QUARLES CHANDLER, of Rocheport, Missouri.—On Malignant Periodic Fevers.

Dr. S. B. CHASE, of Portland, Maine.—On Typhoid Fever in Maine.

The Committee on "Plans of Organization for State and County Societies" being called upon, Dr. A. B. PALMER, of Michigan, the Chairman, stated that the Committee were not prepared to report.

The Committee on Medical Literature, Dr. R. J. BRECKENRIDGE, of Kentucky, Chairman, being called, a letter from the Chairman, stating his reasons for not having his report prepared, was read, and, after considerable discussion, the Committee was continued.

A communication from the Chairman of the Committee on Medical Education, stating the reasons why their report was not ready, and asking the continuance of the Committee, was received.

After some discussion upon the general question of the propriety of continuing committees who failed to make regular reports, it was, on motion of Dr. ATLEE, of Pennsylvania,

Resolved, That further action upon the whole subject under consideration be suspended, in order to take up the report of the Nominating Committee.

Dr. BIDDLE, Chairman of this Committee, then made the following report:—

"The Committee on Nominations, to whom were referred the resolutions in reference to the appointment of a committee on 'Medical Topography and Epidemics,' report the resolutions, with the recommendation that they be adopted.

"They also recommend that the following gentlemen, to compose the committee of one from each State and Territory, be appointed in accordance with the resolutions:—

Maine—J. C. WESTON, Bangor.
New Hampshire—EDMUND R. PEASLEE, Dartmouth College.
Vermont—JOSEPH PERKINS, Castleton.
Rhode Island—JOSEPH MAURAN, Providence.
Connecticut—CHARLES HOOKER, New Haven.
Massachusetts—GEORGE C. SHATTUCK, Boston.
*New York**—JOSEPH M. SMITH, New York City.
New Jersey—LYNDON A. SMITH, Newark.
Pennsylvania—JACOB M. GEMMILL, Alexandria, Huntingdon Co.
Delaware—JAMES W. THOMSON, Wilmington.
Maryland—PEREGRINE WROTH, Chestertown.
Georgia—JOHN F. POSEY, Savannah.
Virginia—J. F. PEEBLES, Petersburg.
District of Columbia—THOMAS MILLER, Washington.
South Carolina—D. J. CAIN, Charleston.
North Carolina—O. F. MANSON, Townesville.
Kentucky—WM. L. SUTTON, Georgetown.
Tennessee—E. B. HASKINS, Clarksville.
Louisiana—E. D. FENNER, New Orleans.
Minnesota—J. H. MURPHY, St. Anthony's Falls.
Ohio—G. MENDENHALL, Cincinnati.
Mississippi—T. J. GRAFTON, Rodney.
Missouri—J. S. B. ALLEYNE, St. Louis.
Michigan—J. H. BEECH, Cold Water.
Alabama—S. W. CLANTON, Warsaw.
Illinois—JOHN EVANS, Chicago.
Indiana—VIERLING KERSEY, Milton, Wayne Co.
Wisconsin—ALFRED L. CASTLEMAN, Delafield.
Iowa—E. A. ARNOLD, Davenport.
U. S. Navy—THOMAS DILLARD, Philadelphia.
U. S. Army—CLEMENT A. FINLEY, Philadelphia.

* This State, left blank in the report, was afterwards filled, as above, by resolution of Dr. Watson, of New York.

"The Committee also report that, in their opinion, it is inexpedient to make any change in the Constitution in regard to the time and place of meeting of the Association."

The following Special Committees were appointed to report upon the subjects named:—

Dr. LEWIS H. STEINER, of Washington, District of Columbia.—On Strychnia—its Chemical and Toxicological Properties.

Dr. ASBURY EVANS, of Covington, Kentucky.—On Tracheotomy in Epilepsy.

Dr. J. TAYLOR BRADFORD, of Augusta, Kentucky.—On the Treatment of Cholera.

Dr. CHARLES Q. CHANDLER, of Rocheport, Missouri.—On Malignant Periodic Fevers.

Dr. H. A. JOHNSON, of Chicago, Illinois.—On the Excretions as an Index to the Organic Changes going on in the System.

Dr. HENRY J. BIGELOW, of Boston, Massachusetts.—On the Microscopical Investigation of Malignant Tumors.

Dr. E. H. DAVIS, of New York.—On the Statistics of Calculous Diseases, and the Operations therefor.

Dr. J. S. CARPENTER, of Pennsylvania.—On the Treatment and Curability of Reducible Hernia.

Dr. A. J. FULLER, of Maine.—On the Best Treatment of Cholera Infantum.

Dr. WM. B. PAGE, of Philadelphia.—On Injuries of the Joints.

Dr. WILSON JEWELL, of Philadelphia.—On the Statistics of Mortality of the large Cities in the United States.

Dr. J. KNIGHT, of New Haven, Connecticut.—On Endemic Tetanus.

Dr. P. H. CABELL, of Alabama.—On the Native Substitutes for Cinchona indigenous to the Southern States.

Dr. JAMES M. NEWMAN, of Buffalo, New York.—On the Sanitary Police of Cities.

Dr. S. W. NOBLE, of Le Roy, Illinois.—On Puerperal Fever and its Communicability.

Dr. J. M. FREER, of Chicago, Illinois.—On the Progress of General and Descriptive Anatomy.

Dr. J. W. CORSON, of New York.—On the Causes of the Impulse of the Heart, and the Agencies which influence it in Health and Disease.

Dr. D. MEREDITH REESE, of New York.—On the Causes of Infant Mortality in large Cities, the Source of its Increase, and the Means for its Diminution.

Dr. MARK STEPHENSON, of New York.—On the Treatment best adapted to each variety of Cataract, with the Method of Operation, place of Election, Time, Age, &c.

Dr. J. B. COLEMAN, of New Jersey.—On the Effect of Mercury on the Living Animal Tissues.

Dr. T. G. RICHARDSON, of Louisville, Kentucky.—On the Diversity of the Venereal Poison.

Dr. J. B. FLINT, of Louisville, Kentucky.—On the Best Mode of rendering the Medical Patronage of the National Government tributary to the Honor and Improvement of the Profession.

Dr. J. C. HUTCHISON, of Brooklyn, New York.—On the Anatomy and Histology of the Cervix Uteri.

Committee to Procure Memorials of the Eminent and Worthy Dead.—Dr. P. A. JEWETT, of Connecticut, Chairman; Dr. THOMAS F. BETTON, of Pennsylvania; Dr. C. J. BLACKBURN, of Kentucky; Dr. WM. M. BOLING, of Alabama; Dr. ZINA PITCHER, of Michigan.

Committee on Plans of Organization of State and County Societies.—Dr. A. B. PALMER, of Michigan, Chairman; Dr. N. B. IVES, of Connecticut; Dr. E. B. HASKINS, of Tennessee; Dr. CHARLES WOODWARD, of Ohio; Dr. JOSIAH CROSBY, of New Hampshire.

Committee of Arrangements.—Dr. ZINA PITCHER, of Detroit, Michigan, Chairman; Dr. MOSES GUNN, of do.; Dr. G. B. RUSSELL, of do.; Dr. A. S. LELAND, of do.; Dr. MORSE STEWART, of do.; Dr. PETER KLEIN, of do.; Dr. J. A. BROWN, of do.

Committee on Prize Essays.—Dr. A. B. PALMER, of Michigan, Chairman; Dr. SAMUEL DENTON, of do.; Dr. A. R. TERRY, of do.; Dr. ABRAM SAGER, of do.; Dr. S. H. DOUGLASS, of do.; Dr. CORYDON LA FORD, of do.; Dr. E. ANDREWS, of do.

Committee on Medical Literature.—Dr. P. C. GAILLARD, of South Carolina, Chairman; Dr. N. P. MONROE, of Maine; Dr. JAMES COUPER, of Delaware; Dr. R. HILLS, of Ohio; Dr. A. COFFIN, of South Carolina.

Committee on Medical Education.—Dr. J. B. LINDSLEY,* of Tennessee, Chairman; Dr. J. B. FLINT, of Kentucky; Dr. P. H. CABELL, of Alabama; Dr. GEORGE HAYWARD, of Massachusetts; Dr. E. B. SMITH, of Missouri.

On motion of Dr. WATSON, of New York, it was

Resolved, That the vacancy in the Committee of One from each

* Dr. W. H. Anderson, of Alabama, was afterwards appointed in the place of Dr. Lindsley, when the latter resigned the Chairmanship of this Committee.

State, upon "Medical Topography and Epidemics," be filled by the selection of Dr. J. M. SMITH, of New York, as the member of the Committee from that State; and then, on motion of Dr. KEATING, of Pennsylvania, the report of the Committee on Nominations was confirmed.

The question in regard to the continuance of the Committee on Medical Education, as requested in the communication of the Chairman of that Committee, the consideration of which had been postponed in order to take up the report of the Nominating Committee, was again resumed. Dr. D. M. REESE, of New York, then made some remarks in favor of continuing the Committee on Medical Education, based upon the representations made in the communication of Dr. W. H. ANDERSON, Chairman of the Committee, that a longer time would be necessary to enable him to avail himself of the extensive domestic and foreign correspondence which he had established upon the subject committed to him; and concluded by offering a resolution, which was adopted, that the request for more time be granted to Dr. ANDERSON, and that his report, when ready, be received by the Committee of Publication, and subjected to their scrutiny before being printed in the *Transactions*.

Upon the adoption of the above resolution, Dr. J. B. LINDSLEY, of Tennessee, who had been already named and confirmed as the Chairman of the Committee on Medical Education, expressed his desire to resign the Chairmanship of that Committee, which request being granted, it was, on his motion,

Resolved, That Dr. W. H. ANDERSON, of Alabama, be chosen to fill the vacancy thus occasioned.

A letter from Dr. W. HOOKER, of Connecticut, in which, after referring to what he considers defects in the present plan of organizing the Committees on Epidemics, he asks to be discharged from the Chairmanship of the Committee on the "Epidemics of New England and New York," was read, and, upon motion of Dr. HAYS, of Pennsylvania, was referred to the Committee on Nominations.

Dr. FRANK H. HAMILTON asked and obtained leave to make some remarks upon Fractures of the Clavicle, supplementary to the report which he yesterday presented.

The hour of 10, appointed yesterday for taking up the preamble and resolutions of Dr. J. W. THOMSON, of Delaware, in reference to the subject of Medical Topography and Epidemics, having arrived, some remarks, in advocacy of them, were made by Dr. THOMSON. When Dr. T. had concluded, Dr. J. L. ATLEE, of Penn-

sylvania, arose and stated that he observed Chief Justice LEWIS, of Pennsylvania, on the floor of the House, and moved that he be invited to take a seat on the platform, which motion having been carried, the Chief Justice availed himself of the invitation.

Dr. ASKEW, of Delaware, then offered, as an appendage to Dr. THOMSON'S preamble and resolutions, the following, which was accepted by the latter:—

Resolved, That all reports on the Medical Topography and Prevailing Diseases of the Different States, in order to entitle them to be received and published in the *Transactions* of this Association, shall first be approved by the Medical Societies of the State or Territory (where such societies exist), to which such reports respectively pertain.

Dr. C. HOOKER, of Connecticut, moved that this whole subject be referred to the Committee on Nominations, pending which motion, the previous question upon the original resolutions was called, and they were adopted.

Dr. J. G. ORTON, of Binghamton, N. Y., offered the following resolutions:—

Resolved, That each County Medical Society, or (in parts of the country where such has not been established), any duly organized Medical Association, be requested to amend its Constitution by attaching thereunto the following article:—

"It shall be the duty of each member of this Society to keep a faithful record of the diseases which may fall under his observation during each month, according to the classification adopted by this Convention in May, 1847, stating the age and sex, occupation and nativity of the patient, the average duration of the disease, and finally, their recovery or death, and to report the same, in writing, to the Secretary, on or before the first day of February of each year, who shall transmit a digest thereof to the State Medical Society, and also to the appropriate committee appointed by the American Medical Association for its reception."

Resolved, That each incorporated Hospital, Infirmary, and Asylum, be invited to furnish a copy of their annual reports for the use of the Committees of their respective States.

Resolved, That the State Committees appointed by this Association to report on the prevailing diseases of their respective localities, shall receive and arrange a digest of the reports transmitted to them by the Secretaries of the various County Societies, and report the same at the annual meeting of this Association.

Resolved, That the 1st day of January be the time fixed at which the object of these resolutions shall be carried into effect, and that the several County Societies and Associations be requested to amend their Constitutions, as heretofore recommended, at as early a date as practicable, and to report to the State Committee their willingness or unwillingness to acquiesce in the request of this Association.

On motion, the resolutions were referred to the Committee on Nominations.

The reports of Standing Committees were again called for.

The President stated, on behalf of Dr. CAIN, appointed to report on the Epidemics of South Carolina, Florida, Georgia, and Alabama, that the gentleman, as he understood, was confined at home by sickness.

The Committee on the Epidemics of Louisiana, Mississippi, Arkansas, and Texas, being called, a letter from the Chairman of the Committee, Dr. FENNER, stating that his report was in progress, was read, and, on motion, the Committee was continued.

Dr. D. F. CONDIE, Chairman of the Committee on the "Causes of Tuberculous Disease," made some remarks in explanation of the non-appearance of his report. He stated that he had been engaged for a period of three years, in examining and arranging a report on this subject. The report will occupy at least five hundred pages, and one reason which has caused it to swell to so great an extent, is that he found it necessary to contradict a large number of statements on the subject. He had prepared a digest of its contents, which, in fact, is merely an index to the whole, and would not of itself repay for the time used in reading it. He expressed a desire that the Association would excuse him, and concluded by offering to it the alternative of receiving at once an imperfect report, or of waiting longer for a thorough one. Whereupon, on motion of Dr. J. L. ATLEE, of Pennsylvania, it was

Resolved, That Dr. CONDIE be allowed to do just as he pleases, without any reference to his obligations to the Association.

On motion of Dr. DAVIS, of Illinois, it was

Resolved, That the Committee to report upon the "Constitutional and Local Treatment of Carcinoma," of which Dr. BRAINARD is Chairman, be continued.

The Committee on the "Influence of Geological Formation on the Character of Disease," Dr. ENGLEMAN, Chairman, was called upon, but no report was received from them.

Dr. HORACE GREEN, of New York, Chairman of the Committee

on the "Use and Effect of Applications of Nitrate of Silver to the Throat," stated that a longer time was required in order to collect the materials necessary for a report. On motion, the Committee was continued.

Dr. BEECH, on behalf of Dr. HENRY TAYLOR, of Michigan, Chairman of the Committee on Dysentery, presented an abstract of his report, which was read, and the report referred to the Committee of Publication.

The Committee on "Hydrophobia, and the Connection of the Season of the Year with its Prevalence," Dr. T. W. BLATCHFORD, of New York, Chairman, presented a partial report, which was read by the Secretary, and, on motion of Dr. SMITH, of New York, the Committee was continued.

The report of the Committee was accompanied by the following circular, of which a number were laid on the Secretary's table for distribution among the members of the Association and others.

Circular.—To any Medical Gentleman of the United States or Canada.

DEAR SIR: The Committee appointed at the last meeting of the American Medical Association to investigate certain Statistics of Hydrophobia, bearing upon municipal regulations, have received but six communications, detailing only sixteen cases of hydrophobia (some of which, however, are exceedingly interesting, and for which the Committee desire to make grateful acknowledgments to the gentlemen forwarding them). Under these circumstances, the Committee are unwilling to do more at this time than to report progress, and ask to be continued.

The object we have in view is not to enlighten the *profession* upon the subject, but to bring the knowledge already in possession of medical men to bear upon the *public mind*, and influence our civil authorities in their municipal regulations regarding hydrophobia. We believe that facts entirely militate against restricting "Dog Laws" to hot weather; and we think the advancement of science demands that this remnant of bygone superstition should be purged from the statute book. In Prussia, Poland, France, Russia, and many other countries in Europe, much attention has been given to this subject, and it is important, in accomplishing our object, that we should ascertain as far as practicable how hydrophobic statistics in our extended country will compare with those in foreign countries, and may we not hope that, through the facilities afforded by the

extensive ramifications of our cherished Association, the necessary statistics for the United States and Canada may be obtained?

The Committee are unwilling to think that want of interest in a subject so important is the cause of their receiving so few communications, but rather that the knowledge of what was wanted was too circumscribed, if not too indefinite, and the time necessary to obtain it entirely too limited.

In a measure to remove these objections, the Committee have prepared this circular, and would respectfully invite communications upon the subject from medical gentlemen in any part of the United States or Canada, who, either in their own practice, or as counsellors in that of others, may have witnessed cases of hydrophobia in *man* or *brute*—stating the day and month of *inoculation*—the period of *attack*—the *duration* of the disease—and, if the human species, the *name*, *age*, *temperament*, *sex*, and residence of the individual.

The Committee would also request you to state whether, in the place of your residence, any "Dog Laws" have been enacted; if so, to what period of the year, if any, they are restricted; and what has been the result of their operation.

An early reply to this circular will enable the Committee to arrange the facts and prepare a report for the meeting of the Association in 1856.

THOMAS W. BLATCHFORD,
A. D. SPOOR,

Committee.

TROY, *24th April*, 1855.

Communications to be addressed to Dr. THOS. W. BLATCHFORD, Troy, N. Y.

A letter from Dr. S. D. GROSS, of Kentucky, Chairman of the Committee to "Inquire into the Causes which obstruct the Formation and Establishment of our National Medical Literature," stating the reasons why the report was not ready, was read, and, on motion, the Committee was continued.

The Committee to "report the best means of preventing the introduction of Disease, by Emigrants, into our country," being called upon, a letter, addressed to the President of the Association soon after the adjournment last year, by Dr. S. H. DICKSON, of South Carolina, Chairman of the Committee, in which he declined the appointment, was read by the Secretary.

A note from Rev. Dr. DUCACHET, Rector of St. Stephen's Church, Philadelphia, inviting the Association to visit the group of statuary in the church, was read, and the invitation accepted.

The hour for recess having arrived, Dr. HAYS, on behalf of the Committee of Arrangements, begged to state that St. Stephen's Church, in which were the beautiful monuments by Steinhauser to the Burd family, was open for the inspection of the members of the Association, as were also the Gallery of the Academy of Fine Arts, the Museum of the Academy of Natural Sciences, the Museums of the different Medical Colleges, and the Reading-room and Library of the Athenæum, and invited the members to visit them. He also reminded the members that this was the time appointed to visit the High School of Philadelphia.

1 *o'clock P.M.*

The Association reassembled at this hour; the President in the chair.

The reading of reports from committees being resumed, Dr. R. D. MUSSEY, of Ohio, read his report upon the "Effects of Alcoholic Liquors upon the System in Health and Disease," and, upon motion, it was referred to the Committee of Publication.

The Committee on "Orthopædic Surgery," from whom no report was received, was continued.

No reply was made to the call upon Dr. ANDREW F. JETER, of Missouri, Chairman of the Committee appointed to report on the "Modus Operandi of the Envenomed Secretions of Healthy Animals."

Dr. S. M. SMITH, of Ohio, appointed to report upon Insanity, at his request, was continued upon that Committee.

Dr. R. LA ROCHE, of Pennsylvania, begged to be excused for not presenting his report on the Jaundice of Yellow Fever, in its Diagnostical and Prognostical Relations, and at his request the Committee was continued.

The Committee on "Malignant Periodic Fevers," Dr. CHARLES Q. CHANDLER, of Missouri, Chairman, made no report; neither was any received from Dr. S. B. CHASE, of Maine, appointed to report upon Typhoid Fever in Maine.

On motion of Dr. R. H. THOMAS, of Maryland, the resolution referring the report on Medical Literature to the Committee of Publication was reconsidered; when, on motion of Dr. C. BELL GIBSON, of Virginia, the further consideration of the subject was postponed until to-morrow.

On motion of Dr. JEWETT, of Connecticut, it was

Resolved, That a committee of one from each State be appointed to report upon a uniform system of registration of marriages, births, and deaths.

The resolution was referred to the Committee on Nominations, to report the names of the Committee.

The hour of adjournment having arrived, Dr. HAYS, on behalf of the Committee of Arrangements, stated that omnibuses would be in waiting at 4½ P. M., to convey the members to the Philadelphia Hospital, Blockley.

The Association then adjourned.

FRIDAY, *May* 4.

The Association met at 9 A. M., the President in the chair.

The minutes of the last meeting were read and approved.

Dr. HAYS, on behalf of the Committee of Arrangements, reported the names of delegates who had registered their names since the meeting yesterday, making, with those previously reported, 528, and representing 26 States.

Dr. REED, of Ohio, was admitted a "member by invitation."

Dr. HAYS, Chairman of the Committee of Arrangements, requested such members as desired to visit the "Training School for Idiotic and Feeble-minded Children," to make the same known to the Committee, in order that suitable conveyances might be provided for them.

On motion of Dr. E. S. LEMOINE, of Missouri, it was resolved that the nomination of a chairman of the Committee on the Epidemics of Missouri, be referred back to the Committee on Nominations.

The following resolution, offered by Dr. J. L. ATLEE, of Pennsylvania, was *lost*:—

Resolved, That the report of Dr. BRECKENRIDGE, of Kentucky, upon Medical Literature, be referred to a special committee of three members, whose duty it shall be to receive and read the report, and hand it over, if they approve of it, to the Committee of Publication.

Dr. HAYWARD, of Massachusetts, offered the following resolution, which was unanimously adopted:—

Resolved, That the thanks of this Association be presented to his Honor the Mayor, and the other officers of the city government, and to the citizens and physicians of the city of Philadelphia, for their kind and continued attentions, and munificent hospitality to the members of this Association during its present session.

Dr. J. L. ATLEE, of Pennsylvania, Chairman of the Committee

appointed at the last annual meeting of the Association, to whom were referred the essay of Dr. PHELPS, of New York, on "Religion as an Element in Medicine, or the Duties and Obligations of the Profession," and also the communication of Dr. R. S. BAILEY, of South Carolina, on the same subject, with instructions to consider and report on the expediency of publishing the same, made the following report:—

"The undersigned, a committee appointed to take into consideration the voluntary essay presented to the Association at their last session, by JAMES L. PHELPS, M. D., of New York, entitled 'Religion, as an Element in Medicine; or the Duties and Obligations of the Profession,' have given the subject their mature consideration, and beg leave to submit the following report:—

In the preamble to the Constitution of the Association, the objects of its formation are stated to be, to cultivate and advance medical knowledge; to elevate the standard of medical education; to promote the usefulness, honor, and interests of the medical profession; to enlighten and direct public opinion in regard to the duties, responsibilities and requirements of medical men; to excite and encourage emulation and concert of action in the profession; and to facilitate and foster friendly intercourse between those who are engaged in it.

At the same meeting at which the Constitution was adopted, a select committee, to whom the subject had been referred, and composed of some of the most active and distinguished members of the Convention, reported a code of medical ethics, resting, as the Committee in their introduction declare, on the basis of religion and morality, and prescribing the duties of physicians to their patients, to each other, and to the public. This code, after due deliberation and discussion, was approved with singular unanimity; and it has since been adopted by most, if not all, of the State and county medical societies.

The principles promulgated by this code have been assumed as a common ground upon which every member of the Association may stand, without reference to the distinctive principles or doctrines which distinguish the various religious societies existing among the vastly extended and diversified population of our country.

The essay presented by Dr. PHELPS is one which must commend itself to the respectful consideration of every intelligent and enlightened reader. Commencing with the earliest recorded history,

it traces the origin and advancement of the profession of medicine from that period through the epochs of Egyptian, Grecian, and Roman ascendency in science and the arts; and finally, through the dark ages to the present time, in an able, interesting and instructive manner. The religious sentiments it inculcates, and the arguments by which they are enforced, do much honor to the heart and intellect of the author. Were the members of the Committee to act individually and from their personal feelings and sentiments, there would be but little difficulty in deciding upon the propriety of its publication by the Association. But as members of the Association, and acting in an official capacity, they are bound to regard the religious sentiments of every medical brother, and to withhold their assent from any publication which does not strictly belong to the declared objects of the Association, and which would be in derogation of the rights, or conflict with the sentiments of any, however limited the number, who have united with us.

That such is the fact with respect to various portions of the essay, the Committee have no doubt; and however desirous they may be to advance the cause of religion, and see it in active operation as an element of medicine, they must demand as a right for every member of the Association, the privilege of introducing it according to the dictates of his own conscience, and to the form which his own judgment may approve. The code of ethics, in the opinion of the Committee, embraces all that can, with propriety, be required of our brethren upon this subject.

The Committee will not consume the time of the Association by dilating upon the above, and other points, which might be relevant; they therefore respectfully submit the following resolution:—

Resolved, That it is inexpedient to publish in our *Transactions*, the essay of Dr. PHELPS.

The communication of Dr. ROBERT S. BAILEY, of South Carolina, on the same subject, having also been referred to the same Committee, they beg leave to state, that having expressed their sentiments in the above report, they respectfully ask permission to be discharged from its further consideration.

JOHN L. ATLEE,
ALDEN MARCH,
LEWIS A. SAYRE."

PHILADELPHIA, *May* 1, 1855.

The report and resolution having been taken up on motion of Dr. L. A. SMITH, of New Jersey, and for some time discussed by

different members, the previous question was called by Dr. R. D. ARNOLD, of Georgia, when the report was accepted, the resolution accompanying it adopted, and the Committee, as they requested, discharged from the further consideration of the subject.

Dr. W. H. WATSON, of Bedford County, Pennsylvania, was admitted "a member by invitation."

The Committee of Arrangements, to whom had been referred the paper on Cholera, by Dr. KNAPP, of Ohio, through their Chairman, reported that it was inexpedient to have the paper read.

Dr. J. L. ATLEE, of Pennsylvania, stated that the Managers of the Academy of Fine Arts had kindly offered to take charge of the stone for the Washington Monument until its removal to Washington, and offered a resolution that the thanks of the Association be tendered to them for their kindness; which was adopted.

Dr. CHARLES HOOKER, of Connecticut, offered the following amendment to the Constitution, which, under the rule, lies over until the next annual meeting of the Association.

"Any permanent member who omits to pay for the published *Transactions* for three successive years, shall be considered as withdrawn."

Dr. N. S. DAVIS, of Illinois, submitted the following preamble and resolutions:—

Whereas, The present mode of conducting the annual meetings of the Association affords but little opportunity for the discussion of strictly scientific questions and papers, and

Whereas, This has been regarded as a serious defect in the operation of our organization, impairing its scientific character, therefore

Resolved, That the daily sessions of the Association, during each annual meeting, be divided into two parts—the first to terminate at an hour not later than 12½ o'clock P. M., each day, and to be devoted, as heretofore, to the general business of the Association—the second, consisting of all the time during which it is deemed advisable to remain in session each day, after 12½ o'clock P. M., to take the character of a scientific session, and to be devoted exclusively to the discussion of questions relating to the science and art of medicine.

Resolved, That the Association, in its capacity of a scientific body, having no power to act on any subject except of a scientific character, may continue in session, whenever thought advisable, a longer period than in its more general capacity.

Resolved, That the foregoing preamble and resolutions be referred

to the Committee of Arrangements, with instructions to report on the same at the commencement of the next annual session.

Dr. C. G. COMEGYS, of Ohio, offered the following preamble and resolutions, which, on motion, were referred to the Committee on Nominations.

Whereas, The American Medical Association, though devoting itself ardently to the interests of medical science, is unable to accomplish all its aims for the promotion of the usefulness of the profession in society without the aid of legislation, therefore

Resolved, That the members of the medical profession, throughout the Union, be urgently requested to take immediate and concerted action for petitioning their several legislative bodies to establish offices for the collection of vital statistics.

Resolved, That for the purpose of securing an ample number of petitioners for this object, this Association suggests that every member of the profession shall endeavor to secure the name of his personal friends.

Resolved, That a copy of the above resolutions be transmitted at once to the several State societies.

Dr. A. J. SEMMES, of Washington, D. C., offered the following resolution, which was adopted:—

Resolved, That a committee of three be appointed to report to the Association, at its next annual meeting, what measures should be adopted to remedy the evils existing in the present methods of holding coroners' inquests by incompetent persons, by which the lives and liberties of the innocent may be jeopardized, and the ends of justice frustrated.

The President appointed as the Committee, Dr. A. J. SEMMES, of Washington; Dr. GRAFTON TYLER, D. C.; and Dr. D. F. CONDIE, of Pennsylvania.

Dr. F. C. STEWART, of New York City, offered the following resolutions, which were unanimously adopted:—

Resolved, That the thanks of the American Medical Association be, and they are hereby tendered to the Committee of Arrangements, for the liberal and cordial reception extended to its members during the present session.

Resolved, That a similar acknowledgment is eminently due, and also unanimously extended, to the officers, trustees, and managers of the several public and private institutions of the city and vicinity, which have been thrown open to the inspection of the members of the Association, the visitation of which has been a source of un-

mingled satisfaction, and the management of which manifests the faithful and zealous care of those to whose guardianship they have been intrusted.

Dr. BIDDLE, Chairman of the Committee on Nominations, to whom was referred the resolution of Dr. JEWETT, "that a committee of one from each State be appointed by this Association, to report upon a uniform system of Registration of Marriages, Births, and Deaths," made a report, recommending the adoption of the resolution, and presenting the following list of names to constitute said committee:—

Dr. M. W. WILSON, Hartford, Conn., Chairman.
" G. S. PALMER, Gardiner, Me.
" SILAS CUMMINGS, Fitz William, N. H.
" G. T. ELLIOT, Jr., Woodstock, Vt.
" EDWARD JARVIS, Dorchester, Mass.
" JOSEPH MAURAN, Providence, R. I.
" JNO. H. GRISCOM, New York, N. Y.
" HENRY CARPENTER, Lancaster, Pa.
" O. H. TAYLOR, Camden, N. J.
" LEWIS P. BUSH, Wilmington, Del.
" A. SNOWDEN PIGGOTT, Baltimore, Md.
" P. C. GOOCH, Richmond, Va.
" N. J. PITTMAN, Tarboro, N. C.
" HARVEY LINDSLEY, Washington, D. C.
" JNO. L. DAWSON, Charleston, S. C.
" R. D. ARNOLD, Savannah, Ga.
" A. LOPEZ, Mobile, Ala.
" JAMES JONES, New Orleans, La.
" R. C. FOSTER, Nashville, Tenn.
" C. J. BLACKBURN, Covington, Ky.
" JNO. DAWSON, Columbus Ohio.
" EDMUND MURPHY, New Harmony, Ind.
" N. D. STEBBINS, Detroit, Mich.
" J. V. Z. BLANEY, Chicago, Ill.
" GEO. D. WILBUR, Mineral Point, Wis.
" WM. MCPHEETERS, St. Louis, Mo.
" J. D. ELBERT, Keosaqua, Iowa.
" JNO. H. MURPHY, Falls of St. Anthony, Minnesota.

Mississippi and Arkansas were left blank.

The Committee on Nominations also recommended the addition of the following Special Committees:—

Dr. M. M. LATTA, of Goshen, Ia.—On the "Question whether there are any Means by which the Growth of the Fœtus in Utero may be controlled without injury to Mother or Child."

Dr. THOMAS MILLER, of Washington, D. C.—On Toxicology.

Dr. E. R. PEASLEE, of Hanover, N. H.—On Inflammation—its Pathology, and its Relation to the Reparative Process.

Dr. D. D. THOMSON, of Louisville, Ky.—On the Remedial Effects of Chloroform.

Dr. WM. CLENDENIN, of Cincinnati, O.—On Epidemic Erysipelas.

Dr. C. G. COMEGYS, of Cincinnati, O.—On the State of the Urine in Tubercular Disease.

The report of the Committee was then adopted.

Dr. J. L. ATLEE, of Pennsylvania, offered the following resolutions:—

Resolved, That to secure efficient teaching in medical schools, where the prime object is to enforce practical precepts, a large degree of union and harmony must exist among the teachers, and confidence be reposed in them by their pupils.

Resolved, That any such unnatural union as the mingling of an exclusive system, such as homœopathy, with scientific medicine in a school, setting aside all questions of its untruthfulness, cannot fail, by the destruction of union and confidence, and the production of confusion and disorder, unsettling and distracting the mind of the learners, to so far impair the usefulness of teaching as to render every school, adopting such a policy, unworthy the support of the profession.

Dr. A. B. PALMER, of Michigan, seconded the resolutions, and explained their applicability to the case of the University of Michigan, upon which the Legislature of the State, in contravention of its charter, had recently intruded a chair of Homœopathy.

Dr. P. expressed, in strong terms, the indignation which the faculty and students of the University had manifested upon the occasion, and earnestly urged the Association to support them, by declaring its opinion in condemnation of the action of the Legislature.

The resolutions, after a very warm discussion, which elicited much interest on the part of the members generally, were passed, unanimously, by the Association.

Dr. FOSTER, of Tennessee, offered the following resolution, which, on motion, was laid on the table:—

Resolved, That the State Medical Societies be requested to hold

their annual meetings just one month before the meeting of the American Medical Association.

Dr. CLENDENIN, of Ohio, offered the following resolutions:—

Resolved, That no State or local society shall hereafter be entitled to representation in this Association, that has not adopted its Code of Ethics.

Resolved, That no State or local society that has intentionally violated or disregarded any article or clause in the Code of Ethics, shall any longer be entitled to representation in this body.

Dr. L. A. SMITH, of New Jersey, moved to lay these resolutions on the table, which motion, after discussion, was lost.

Dr. J. W. MILTENBERGER, of Maryland, offered, as an amendment, the following preamble and resolutions, to be appended to the resolutions of Dr. CLENDENIN:—

Whereas, It has been brought to the notice of the American Medical Association that the State Medical Society of Ohio violated, at their last annual meeting, one of the articles of the Code of Ethics adopted by this Association, therefore

Resolved, That the Secretary of this Association be directed to inform the officers of that Society that, unless such action be rescinded, it cannot hereafter be represented in this Association.

Dr. J. L. ATLEE, of Pennsylvania, proposed, as an amendment to the foregoing preamble, that the obnoxious action alluded to should be specified. The amendment was accepted by Dr. MILTENBERGER, and then the resolutions of Dr. CLENDENIN, with the preamble and resolution of Dr. MILTENBERGER, as amended by Dr. ATLEE, were adopted. The resolutions, as amended and adopted, are as follow:—

Resolved, That no State or local society shall hereafter be entitled to representation in this Association, which has not adopted its Code of Ethics.

Resolved, That no State or local society which has violated or discarded any article or clause in said Code of Ethics, shall any longer be entitled to representation in this body.

And whereas, It has been brought to the notice of the American Medical Association that the State Medical Society of Ohio violated, at their last annual meeting, one of the articles of its code of ethics by adopting a resolution, "That it is not derogatory to medical dignity, or inconsistent with medical honor, for medical gentlemen to take out a patent right for surgical or medical instruments;" therefore,

Resolved, That the Secretary of this Association be directed to

inform the officers of the State Medical Society of Ohio, that unless such action be rescinded, it cannot hereafter be represented in this Association.

Dr. A. STILLÉ, of Pennsylvania, offered the following resolutions, which were adopted:—

Resolved, That a special committee of five be appointed to report, at the next meeting of the Association, upon the following question:—

"Might not the present system of repeating the same lectures to the same classes, during two successive terms, be usefully modified by extending the lectures of each chair over two sessions, so as to embrace systematic and complete discussion of each of the following subjects?:—

1. Special, Regional, and General Anatomy, including illustrative references to Morbid Anatomy.
2. Inorganic, Organic, and Pharmaceutical Chemistry and Toxicology.
3. General and Human Physiology, Hygiene, Medical Jurisprudence.
4. Medical Botany, Materia Medica, General Therapeutics.
5. General Pathology, Morbid Anatomy (systematic), Practice of Medicine.
6. General Surgical Pathology, or Institutes of Surgery; Mechanical, Operative, and Medicinal Surgery.
7. Obstetrics, Diseases of Women, Diseases of Children.
8. Hospital Clinical Medicine and Surgery."

Resolved, That the Committee, at an early day, address the several medical colleges in regard to the proposed plan of instruction, requesting from them an official expression of opinion upon its merits and feasibility.

Dr. R. P. THOMAS, of Pennsylvania, moved that the appointment of the Committee, contemplated by Dr. STILLÉ'S resolutions, be made by the Committee on Nominations; which motion was lost.

On motion of Dr. PITCHER, it was

Resolved, That the Committee under the above resolutions be appointed by the President, and that he be allowed to do this after the final adjournment of the Association.

The President appointed, under the preceding resolutions, the following Committee:—

Dr. ALFRED STILLÉ, of Philadelphia, Chairman; Professor SAMUEL JACKSON, of Philadelphia; Dr. JOHN BELL, of Philadelphia; Dr.

JOHN WATSON, of New York; and Dr. J. L. CABELL, of Charlottesville, Virginia.

Dr. LEVI D. SCHEETS, of Ohio, offered the following preamble and resolutions, which, as an amendment of the Constitution, lie over, under the rule, until the next annual meeting of the Association.

Whereas, It has been found necessary to devise some means of elevating the standard of education, both professional and general, among medical men, by those who are best acquainted with the sad and lamentable deficiency which prevails in this respect among a large mass of the profession, and particularly in the western States.

And whereas, Efforts to this effect, at home, have been opposed on the ground that more was exacted by such as took an active part in the matter than is required by the "American Medical Association."

And whereas, It is believed that the National Society can exert a beneficial influence over the whole country; therefore

Resolved, That the Constitution of the Association be so amended as to require all delegates, before being allowed a seat in said Association, to satisfy the proper authorities that the societies which they represent, require *graduation* as the *sine quâ non* to membership therein, and that no person can become a *permanent member*, a *member by invitation*, or can be received as a *delegate* from any other body, *unless he be a graduate* of some respectable medical school.

Resolved, That the Editors of the various medical journals of the United States be requested to publish the foregoing, so that an interest may be awakened upon this subject, and that societies may be prepared to comply with the above requisitions in case they meet the approval of this Association.

Dr. J. W. CORSON, of New York, asked and obtained leave to read a brief abstract of a paper on the "Influence of Lead upon the Heart's Action, and the Importance of the Study of the Cardiac Impulse in Disease generally, founded upon a Series of Observations."

Dr. F. C. STEWART, of New York, moved that the paper of Dr. CORSON be referred to the Committee of Publication, with orders to publish it in the *Transactions*.

The hour for recess having arrived, it was, on motion of Dr. CONDIE, of Pennsylvania,

Resolved, That no recess be taken, but that the session be continued until the business of the Association be completed.

Dr. N. S. DAVIS, of Illinois, then offered the following amendment

to Dr. STEWART'S motion, which, being accepted by Dr. S. as a substitute, was adopted by the Association:—

"*Resolved*, That the paper by Dr. CORSON be referred to a committee of three, for the purpose of examination, and, if approved by said Committee, that it be published in the *Transactions*."

Dr. N. S. DAVIS, of Illinois, Chairman, Dr. ISAAC WOOD, of New York, and Dr. F. C. STEWART, of New York, were appointed on this Committee.

Dr. R. H. THOMAS, of Maryland, read a communication upon a New and Easy Method of applying Nitrate of Silver to the Air-Passages, and exhibited the apparatus employed for the purpose. It consists in applying a stick of caustic lightly to a fine grindstone or emory wheel, made to revolve with great velocity. The caustic is thus thrown off in an impalpable powder, which may be inhaled by the patient sitting before the stone.

On motion of Dr. G. EMERSON, of Pennsylvania, the paper was referred to a committee of three, with instructions, if they deem it worthy of insertion in the *Transactions*, to hand it over to the Committee of Publication.

Drs. G. EMERSON, of Pennsylvania, G. W. MILTENBERGER, of Maryland, and R. P. THOMAS, of Pennsylvania, were appointed the Committee.

Dr. ATLEE, of Pennsylvania, offered the following resolution, which was adopted:—

Resolved, That the subject of the contagiousness, or non-contagiousness of cholera, be especially recommended to the attention of the State Committees on Epidemics, Medical Topography, etc.

Dr. HINTZE, of Maryland, proposed to add to the resolution, previously passed, returning thanks to the Philadelphia, Wilmington, and Baltimore Railroad Company, the words—"and to all other Railroad and Steamboat Companies who have afforded similar facilities to the members of the Association," which proposition was adopted.

Dr. J. B. LINDSLEY, of Tennessee, on behalf of the Chairman of the Committee on Nominations, proposed the following names in addition to the Committee already appointed to report on the "Anatomy and Histology of the Cervix Uteri"—

Dr. C. J. BLACKBURN, of Kentucky.

" ZINA PITCHER, Michigan.

The Secretary, Dr. WEST, read to the Association a note received from Dr. GROSS, of Kentucky, soliciting action upon the preamble

and resolution offered by him at the last annual meeting of the Association, which are as follows:—

"*Whereas*, It is of great importance to the proper transaction of business as well as to the good feeling of this Association, that its presiding officer should be fully acquainted with parliamentary usages and the mode of presiding over deliberative assemblies; therefore,

"*Resolved*, That the part of the Constitution which relates to the election of officers be so amended that the election shall take place immediately before its adjournment, instead of immediately after its commencement."

On motion of Dr. N. S. DAVIS, the said preamble and resolution were indefinitely postponed.

An amendment to the third article of the Constitution, altering the time of meeting of the Association from the first to the second Tuesday of May, offered last year at St. Louis, being called up, it was, on motion, indefinitely postponed.

The proposition offered at the last annual meeting by Dr. F. A. RAMSEY, of Tennessee, that the Constitution may be so amended as to dispense with the Nominating Committee and the duties of such Committee, was, on motion, *rejected*.

Dr. N. B. IVES, of Connecticut, proposed the following amendment to the Constitution, to be appended to the end of the second article:—

"The Association shall, at all times, have power to punish any of its members by reprimand, suspension, or expulsion, upon a three-fourths' vote of the members present at any meeting, at which not less than one hundred are in attendance." The amendment lies over, under the rule.

Dr. DORSET, of Virginia, offered the following amendment to the Constitution:—

Resolved, That, with a view of adding dignity and influence to our body, and conveying a more adequate idea of its national representative character, the title "National Medical Congress" be substituted for that of "American Medical Association," and that we hold our sessions at least once in three years, in Washington, D. C.

Dr. A. M. POLLOCK offered the following resolution, which, on motion, was adopted:—

Resolved, That no organization or institution, entitled to representation in this Association, shall be considered in good standing which has not adopted its Code of Ethics.

On motion of Dr. J. W. CORSON, of New York, it was unanimously

Resolved, That the Committee of Arrangements be requested cordially to invite the profession of the neighboring British Provinces to be present at the next meeting of the Association, in Detroit, with such identification as may entitle them to the courtesy of becoming "Members by Invitation."

Dr. LEMOINE, of Missouri, called up the amendment to the Constitution offered last year by Dr. BYFORD, to change the name of the "Committees on *Epidemics*" to "Committees on *Prevailing Diseases*," which, after discussion, was indefinitely postponed.

On motion of Dr. ROGERS, of Pennsylvania, it was

Resolved, That the hour of four, this afternoon, be fixed for visiting the Navy Yard, agreeably to the invitation received from Commodore STEWART, and that the thanks of the Association be returned to the Commodore, through Dr. HORNER.

Dr. HAYS, on behalf of the Committee of Arrangements, stated that the Mayor of the city, at the suggestion of some citizens who were anxious that an account of the reception of the Association at "Independence Hall" should be preserved in a better form than that of a simple newspaper report, had determined to have it printed in a neat form for distribution among the delegates and the public. Whereupon it was

Resolved, That the thanks of the Association be transmitted to the Mayor, for his courtesy and liberality.

On motion of Dr. DAVIS, of Illinois, it was

Resolved, That the Secretary be requested to embrace in the vote of thanks passed by the Association, the name of any institution which may inadvertently have been omitted.

Dr. HAYS stated that omnibuses would be in attendance at the Musical Fund Hall this afternoon, at 3½ o'clock, to convey to the "Pennsylvania Training School for Idiotic and Feeble-Minded Children," such members of the Association, and ladies of their parties, as wished to visit that interesting and useful institution; and also, that omnibuses would be at the principal hotels at 4½ P. M., to convey to the "Pennsylvania Institution for the Instruction of the Blind," such members, and ladies of their parties, as desired to visit that institution; and that the managers had been kind enough to make special arrangements for a concert by the pupils of the school, for the entertainment of the Association.

It was also stated that omnibuses would be at the Hall on

Saturday morning, at 10 o'clock, to convey to the Navy Yard such members as desired to avail themselves of the polite invitation of the officers of that station to visit it, and inspect the dry-dock, large steam frigate in process of building, and other objects of interest there.

Dr. HAYS also called attention to the different public institutions, of which short accounts were to be found in the small volume furnished to members, and stated that they had all been opened to the visits of members of the Association.

There being no further business, the Association, on motion, adjourned *sine die.*

FRANCIS WEST,
WILLIAM BRODIE, } *Secretaries.*

REPORT

OF

THE COMMITTEE ON PUBLICATION

AND OF

THE TREASURER.

REPORT OF THE COMMITTEE ON PUBLICATION.

THE Committee on Publication respectfully report:—

That the seventh volume of the *Transactions* of the Association, with the supervision of the publication of which they were intrusted, was put to press at as early a period as practicable, completed in November, and immediately distributed to those who at that time were entitled to it.

One thousand copies were printed; seven hundred and eighty-one have been furnished to members or sold, thirty-five presented to the editors of medical publications and to medical societies, and one hundred and eighty-four still remain undisposed of.

The aggregate direct expense upon the book—that is, the amount of the bills for lithography, paper, printing, and binding, was one thousand eight hundred and six dollars and forty-two cents ($1,806 42). The expenses of distribution, and other incidents, are given in detail in the report of the Treasurer.

The Committee take this opportunity to acknowledge the courtesy of Dr. Daniel Brainard, who, for the purposes of the seventh volume of the *Transactions*, tendered the use, free of expense, of the finely-executed engravings, prints from which illustrate his essay upon "A New Method of Treating Ununited Fractures." The Association was thus saved from an expense of no trifling magnitude.

The Committee also gladly avail themselves of the occasion to render their thanks to the several gentlemen, in different parts of the country, who have exerted themselves to extend the circulation of the volume. If some member of every State or county medical society were to enter into the work with the same zeal and energy which have characterized those who have co-operated with the Committee during the past year, a much larger number of the *Transactions* would be required. Were every section of our country to purchase, in proportion to its population, as liberally as Connecticut,

an edition of five thousand copies would be absorbed, estimating the number of inhabitants of the Union at but twenty millions.

In view of the delay in publication which is liable to be occasioned by the reference to the Committee on Publication, of reports and other papers of which abstracts alone are presented to the Association, the Committee would recommend for adoption the following resolution:—

Resolved, That hereafter, beginning with the session for 1856, no report, or other paper, shall be entitled to publication in the volume for the year in which it shall be presented to the Association, unless it be placed in the hands of the Committee on Publication on or before the first of June.

The unsold copies of the first six volumes of the *Transactions* have remained in charge of Dr. D. Francis Condie, the former Chairman of the Committee on Publication. The schedule subjoined exhibits the number disposed of in the course of the year, together with those remaining on hand at the present time:—

Vol. I. On hand at the time of the last report, 54 copies; received since, 1; making 55.

Disposed of, in course of the year . .	9 copies.
Remaining	46
	—55

Vol. II. On hand at the time of the last report, 20 copies; received since, 1; making 21.

Disposed of, in course of the year . .	9 copies.
Remaining	12
	—21

Vol. III. On hand at the time of the last report, 41 copies; received since, 1; making 42.

Disposed of, in course of the year . .	11 copies.
Remaining	31
	—42

Vol. IV. On hand at the time of the last report, 18 copies; received since, 1; making 19.

Disposed of, in course of the year . .	8 copies.
Remaining	11
	—19

Vol. V. On hand at the time of the last report, 348 copies.

Disposed of, in course of the year . .	20 copies.
Remaining	328
	—348

Vol. VI. On hand at the time of the last report,	219 copies.
Disposed of, in course of the year . .	114 copies.
Remaining	105
	——219

Hence it will be perceived that the Association retains possession of but eleven complete sets of its published *Transactions*. This is but four more than have been parted with in the course of the fiscal year just terminated. The remaining copies become increasingly valuable, from year to year, and all will undoubtedly be called for within a period of comparatively limited duration. The Committee therefore propose that the following resolutions be adopted by the Association:—

Resolved, That of the seven volumes of the published *Transactions* of this Association, no copy of either, which is necessary to the complete sets remaining, shall be disposed of separately, or with any number of copies of the other volumes, short of a full set.

Resolved, That the price of a set of the seven volumes shall be thirty-five dollars.

Respectfully submitted.

PLINY EARLE,
D. FRANCIS CONDIE,
E. H. DAVIS,
FRANCIS WEST,
E. S. LEMOINE,
ISAAC WOOD,
C. R. GILMAN.

REPORT OF THE TREASURER.

THE Treasurer respectfully reports:—

That, in compliance with duty, and in order to enable the Committee on Publication to judge what number of copies of *Transactions* to print, he issued a circular, dated 13th of June, and addressed one to each of the members of the Association; after the work was published, circulars were again issued to some, who had not been heard from, and notice was given in daily and medical journals. Finding that some had not received nor seen any of these notices, another circular was issued on the 24th of January, and directed to all who had not responded to those already sent. To this many returns were received, expressing great satisfaction for the opportunity of obtaining the volume, and several hundred dollars were added to the funds of the Association. Still later, however, even as late as the 30th of March, it was ascertained the information had not been received by all the members, and the fourth time circulars were sent out. These particulars will show how impracticable it is for some members to comply with requisitions established at meetings at which they are not present. The undersigned would therefore suggest that such modification of the restrictive resolutions, passed at the last session, be made, as would restore members who pay up all dues, to their former rights and privileges.

Before delivering up this official trust, it is a pleasure to acknowledge the kind aid received from the late Treasurer, Dr. D. Francis Condie.

ISAAC WOOD, *Treasurer.*

April 30, 1855.

The American Medical Association in Account with Isaac Wood, M. D., Treasurer.

DR.

1855.

To cash paid	Baker, Goodwin & Co., for paper, and printing *Transactions* . . .	$1,372 61
" " "	Baker, Goodwin & Co., for printing circulars	22 50
" " "	Baker, Goodwin & Co., for binding 1,000 copies *Transactions*, in cloth . .	200 00
" " "	J. H. Colton & Co., engraving and printing map	121 50
" " "	Ferd. Meyer & Co., engraving and printing charts of climate . . .	75 00
" " "	W. Pate, paper, and printing illustrations of Dr. Brainard's essay . .	37 31
" " "	C. B. Norton, expenses of distribution	81 27
" " "	postage and express	50 95½
" " "	stationery	4 23
" " "	advertising	1 75
" " "	collecting	1 20
" " "	discount on bills and checks . .	2 72
" " "	Dr. Brainard, for prize essay . .	100 00
" " "	loss by mail	30 00
" " "	balance due the Association . .	1,115 26
		$3,216 30½

CR.

By cash	received from Dr. D. Francis Condie, being the balance in the Treasury, April 22, 1854	$293 99
" "	received from assessment and sales of *Transactions*	2,722 31½
" "	" " Dr. George B. Wood, on account of prize fund	100 00
" "	received from Daniel Brainard, on account of prize fund	100 00
		$3,216 30½

E. E. ISAAC WOOD, *Treasurer.*

NEW YORK, *April* 30, 1855.

We have examined the above account of the Treasurer, together with his vouchers, and find them correct; leaving a balance of eleven hundred and fifteen dollars and twenty-six cents ($1,115 26) due the Association.

PLINY EARLE,
C. R. GILMAN,
E. H. DAVIS,
E. S. LEMOINE,
D. FRANCIS CONDIE,
FRANCIS WEST,
ALDEN MARCH.

ADDRESS

OF

CHARLES A. POPE,

PRESIDENT OF THE ASSOCIATION.

ADDRESS OF CHARLES A. POPE,

PRESIDENT OF THE ASSOCIATION.

GENTLEMEN: With feelings of grateful pleasure, I meet you, and greet you, on this occasion.

For high and useful purposes, have we assembled from the wide extent of our beloved country. The elevation of a noble profession—the promotion of science—the good of humanity—these have been, are, and will continue to be, the objects of our Association. Whether we have, thus far, done much or little, our sole aim has been the advancement of the best interests of our fellow-men. I shall not assert that we have done as much as we might have done, or that the course hitherto pursued by us is so perfect as to admit of no improvement. Were such the fact, and were the Association a firmly established institution, I might have experienced more hesitation in the selection of a theme for the present occasion. And since we cannot, as yet, I think, urge such a claim, the few suggestions which I shall offer are made with becoming diffidence, but, at the same time, with a deep sense of their importance to the welfare and perpetuity of our Association.

Some strictures on our proceedings, in medical and other journals, have appeared within the last year, as well as in previous years. I shall not here blame the authors of them. They are, doubtless, as proud of our noble profession as we, and equally with us anxious for the advancement of its interests and its honor. I thank them for their suggestions. All of us are ready to hear them and to profit by them. If any more effectual mode of arriving at truth can be devised, than that which we have heretofore pursued, all of us are ready to follow it, and would rather thank than quarrel with those who may propose it.

Physicians have an almost superhuman mission to fulfil. The goal of their ambition, and their hopes, and their duty, stands at the *ultima thule* of human capacity—nay, rather beyond it. It cannot, indeed, be said, that their duties are beyond their powers, but their ambition, their hopes, their wishes certainly are. They would gladly know, not only all the secrets of organization, but those also of physiology, pathology, and therapeutics. To arrive at such knowledge is, perhaps, beyond the attainment of the human mind. Multiform are the elements which enter into the problems of health and disease. Health is, itself, a constant change of composition; diseases are ever-varying changes supervening on this.

Do we yet know, with all our advancement, and after all the toil of our predecessors for two thousand years, the exact changes in which any disease—the fevers, for instance—consists? And even when we shall have learned these, so as to understand them as well as the most ordinary chemical changes, the ever-varying character of most diseases, and the inward disturbing influences upon them of the mental and moral emotions, would require, to follow them, a continued stretch and power of intellect, of which it is doubtful if man be capable. This exactness of knowledge is not, I grant, necessary to the very successful practice of medicine. Our profession can render great and important services to man without it, but with it, it would be still more serviceable. To it our ambition tends. To this perfect knowledge we aspire. Although we may never reach, we can yet eternally approach it. In the vast region of our researches there is no probability that human genius will ever, Alexander like, weep for the want of unconquered provinces. Beyond the conquests of the future heroes of the profession, there will always be a boundless field for the ambitious and philanthropic explorer. In the language of a western student, "the science of medicine, like the liver of Prometheus, is sufficient to glut the eagles of all time."

The object of this Association is to do something to advance the profession towards the far-distant goal of perfection; to aid the solution of some of the problems and enigmas of life and organization; to add some material to the growing temple, whose foundations were so firmly laid by the Coan sage; and to do its part, as best it may, in the cause of humanity. Nor do I think that, so far, it has altogether failed. Many valuable contributions to science have been elicited; professional ambition has been stimulated; an

esprit de corps has been successfully evoked and established. The strength of the profession has acquired additional power by the union of its members. This association has been to physicians what the railroad and electric wires are to commerce, and the interchange of useful knowledge to states and nations. It has made us one, and, as I have just remarked, in unity there is power. This Association has stimulated thought. Chaotic and void would forever remain the masses of facts, accumulated by the observations of ages, but for the co-ordinating and logical power of reason. It sits in judgment on the silent phenomena, as a "refiner and purifier of silver." It forces the voiceless facts to mount the tripod of the oracle, and speak forth words of wisdom. The scalpel, the crucible, the microscope, may be subsidiary to its purposes and ends, but they cannot supply its place. Fixed and patient thought, in medicine as in other departments of science, is the Aladdin's lamp that lights the footsteps of the discoverer. To stimulate attention and thought, is to accelerate many a new discovery—to hasten the advent and establishment of important principles yet in the womb of the future. May not our Association do this more effectually than it has hitherto done?

Let all the contributions be read and attentively considered. Such a course would certainly be more encouraging, as well as more respectful to their authors. Let the reports be deliberately and fully discussed, and let them go forth to the world with the sanction or the criticisms of the Association. This would require time, it is true; but, if we have time to meet at all, surely a few days would make but little difference. The good that would be effected would yield a tenfold compensation for the time employed. Every one must admit that three or four days is too short a time for the Association rightly to fulfil its annual mission.

I would, moreover, respectfully suggest that time be taken for the discussion of some of the leading topics of medical philosophy. Amongst these may be mentioned the nature, causes, and treatment of cholera, yellow fever, etc.; hygiene, and the laws of health affecting masses of men; quarantine; the causes of mortality among children; the chemical and vital doctrines of life. Questions like these, indicated a year in advance for discussion, would excite a carefulness of investigation, and a degree of attention and thought, which could not fail to clear away much of the darkness and doubt in which they are yet shrouded. Nothing so sharpens the intellectual powers as

public debate. It fixes attention, and strains to the utmost every faculty. I have no hesitation in saying that facts enough have been accumulated to establish great and general principles, of which the medical world is yet in ignorance or doubt. Nothing would contribute more to demonstrate these principles than the collision of matured intellects in public debate. What a mass of facts, and argument and demonstration would be brought to bear on any of the subjects alluded to, if some of the best minds in the profession were to debate them, after a year's preparation! Observed facts are the crude materials of science—the intellect is the master builder of its august temple.

I make these suggestions for your consideration. All the scientific meetings in this country and in Europe employ more time than ours has hitherto employed. Evidently, we must protract our sessions, if we would render them as serviceable to science as they may be. No member of the Association will be required to remain longer than suits his wishes or convenience. Some fifty or sixty, more or less, would always be found to listen with eagerness to scientific papers, and engage with pleasure in scientific discussions.

The time has probably arrived for a change in our plan of organization, which will admit of the selection of a permanent place for the future meetings of the Association. There are evident advantages incident to both the migratory and stationary plans. These might, perhaps, be easily reconciled and secured. A proposition, if I mistake not, was made some years ago by the Smithsonian Institution; and I would respectfully suggest whether it would not be in accordance with the best interests of the Association to hold biennial meetings in Washington, and the alternate ones, as now, at different points of our common country. We might thus secure all the advantages of a fixed abode—in the way of preserving the archives, making collections, etc.—whilst, by meeting in various localities, we could not fail to excite that wide-spread interest among the profession, and obtain such accessions of new members as would greatly enhance the high and useful objects of our Association. Should this proposal meet with your approbation, I would further intimate that policy would perhaps require the meetings of the Association at the National Capital to be held in the years of the short sessions of Congress.

I shall say but little of the legislative duties of the Association. I shall say nothing of the propriety or impropriety of getting laws

passed to regulate the practice of medicine, and furnish standards for candidates for the doctorate. Perhaps the Association can do but little in this respect. Ours is a popular government, and the people are disposed to allow the largest freedom in everything pertaining to medicine, medical schools, and physicians. Laws passed against quackery one year are revoked the next. Our country is the paradise of quacks. All good things have their attendant evils, and this unbridled liberty is one of the evils of a popular government. May we not hope, however, that even this evil may disappear, as general education and the cultivation of the masses advance? At any rate, the people are not yet disposed to put down the quacks, nor to require too high a degree of qualification for those of the regular profession. After all, laws can make only mediocre physicians. They can require the candidates to know only so much—to be qualified to a certain degree; and this degree will always be far lower than that to which the true lovers of knowledge would attain without any legislation on the subject. The greater lights of the profession cannot be manufactured after any process of legislative enactment. Thirst for knowledge, self-love, philanthropy, burning ambition—these make the great physician and surgeon. These have made all the worthies of the past—not legislation. Legislation cannot drive the drone to the proud heights of professional eminence. When these heights are reached, it will be seen that the successful aspirant has been stimulated by a stronger power. To him the laurel blossoms of renown and the life-giving mission of his art, are dearer and more attractive than was the mystic bough of the sibyl to the eager Æneas, or than the golden apples, guarded by sleepless dragons, to the Hesperian daughters.

Whatever course you may think proper to pursue, I am sure that your objects will be, the advancement of science, the good of mankind, the honor and glory of the profession. We have the dignity and character of a noble calling to sustain; of a profession which has numbered, for two thousand years and more, some of the wisest and best men in all countries and all times. It is no trivial matter to sustain the rank and respectability of a vocation which can boast of a Hippocrates, a Harvey, a Hunter; of the most erudite and beneficent of sages and philanthropists the world ever saw; of a profession which has furnished to every nation its *clarum et venerabile nomen.*

On the eve of the battle of the Pyramids, Napoleon exclaimed,

"Soldiers! from the height of yon monuments, forty centuries look down upon you." Gentlemen, from the heights of past ages, countless worthies of our godlike profession point and beckon to a goal more elevated than ever attracted legislators and conquerors, Solons and Cæsars.

REPORT

ON THE

DISEASES OF MISSOURI AND IOWA.

REPORT ON THE DISEASES OF MISSOURI AND IOWA.

To the President of the
American Medical Association:—

The Chairman of the Committee appointed in 1851 to report on the prevalent diseases (epidemics) of Missouri, Illinois, Iowa, and Wisconsin, herewith presents to the Medical Association a partial report, embracing the diseases of Missouri and Iowa from 1851 to 1854 inclusive. In accordance with the regulations of the Association, the Chairman of the Committee, soon after his appointment, selected Dr. John Evans, of Chicago, Illinois, Dr. John F. Sandford, of Keokuk, and Dr. John H. Rauch, of Burlington, Iowa, to cooperate in preparing the report, apportioning the discussion of the diseases of Illinois and Wisconsin to Dr. Evans, those of Iowa to Dr. Sandford and Dr. Rauch, reserving those of Missouri for the labor of the Chairman of the Committee. The papers now presented were prepared by the parties whose names are appended to them. The Committee respectfully asks for further time to complete the report on the diseases of the district committed to its supervision, and would likewise suggest the propriety of dividing the district into smaller sections, so as to facilitate the progress of the task enjoined upon us.

Respectfully submitted,
THOMAS REYBURN, M. D.,
Chairman of the Committee on the Epidemics of Missouri, Iowa, &c.

St. Louis, *April* 25, 1855.

TOPOGRAPHY OF ST. LOUIS.

St. Louis is situated on the western bank of the Mississippi, 1,390 miles above the Balize, 1,286 above New Orleans, 174 above the

confluence of the Ohio, and 19 miles below the mouth of the Missouri. It is in lat. 38° 37′ 28″ N.; long. 90° 15′ 39″ W. According to Nicollet, the elevation of the river, at low water opposite St. Louis, is 382 feet above the gulf. (See Appendix for exact altitude.)

"The city is built in a gentle bend of the Mississippi, which flows nearly from north to south. Its site is a bed of carboniferous limestone, covered with deposits of loam, which, though generally deep, are, in many places, so thin that the foundations of the houses rest on the solid rock. Above the city the rocks appear in low bluffs." (Drake.) The river front, along the town, is nearly a level, the north and south extremities being but little depressed below the central portion. From this front, the central portion of the town rises in a gentle and nearly regular manner to the elevation of about 80 feet above low water, making it 462 feet above the level of the sea. (Nicollet, as quoted by Drake.) "In advancing into the country in any western direction from south round to north, we either continue on this, or gradually rise to a higher level. The rocks beneath are calcareous, with beds of coal. The general aspect of the surface is that of levelness, and some small portions incline to be swampy; but in general the drainage is perfect, by means of the inequalities, the fissures and the apertures of the subjacent rocks. The soil is rich and argillaceous rather than sandy, and, where not cultivated, is covered with a thin growth of oak and hickory trees, and copses of hazel bushes. The rapid growth of the city has led, in latter years, to a great deal of levelling, and, consequently, to the exposure of much new surface to the action of the elements." (Drake.)

The surface level of the city may be described as presenting three different elevations, which we shall describe as the southern, central, and northern sections. These sections are of different area, the central being the most extensive, and as it rises and runs back from the river, it projects to the north an elevated extension, which hems in the north section on its western side. This central section, the highest level of the city, is more irregular in its surface than the other sections, presenting within its boundaries some of the most elevated points within the city limits, and, as it recedes from the river, a gradually descending grade at one point that dips nearly to the level of the lowest or south section. On its southern limits is a valley that was once the bed of an extensive pond, called Chouteau's Lake, a lateral expansion of the Gravois, or Mill Creek, that drained

an extensive area of the county of St. Louis. This valley, and its outlet, Mill Creek, are fast disappearing, the lake itself having been, within a few years, drained, and its bed elevated by the extension of streets across it. The river front of this central section is, in extent, about two and a half miles. It is slightly undulating, and, for the most part, is above the level of the annual freshets of the river, yet, in some few places, admitting their encroachments over a very limited extent of surface, to the depth of one or two feet.

The southern section is a low level, once an extensive meadow or hollow, which, in extraordinary freshets in the Mississippi, is in some parts liable to overflow. Towards its northern limit, is the valley of Chouteau's Lake and Mill Creek described above. The natural surface of the river bank here, is a few feet above the usual high water in the river; the grade of the section ascends as it recedes from the river. The streets intersecting it are all elevated above the natural level, and, in some instances, as they approach the bed of the former pond, their elevation is over twenty feet. This section has a river front of nearly two miles; it extends back about three-eighths of a mile from the river, when the grade ascends, soon attaining an elevation equal to the highest point in the middle section. The northern section is, like the southern, an extensive area of level bottom land, which extends about a mile and a quarter along the Mississippi with a depth, back from the river, of little over a quarter of a mile. Like the southern section, it is hemmed in on its western limits by elevated ground that here is a projection of the central section, forming a ridge or high land, along the brow of which hang the vapors or miasmata which are generated in the bottom land. The artificial grading of this section is elevated some six to twelve feet above the natural surface, and extensive filling in with earth has been required in building this as well as the southern quarter of the town. The general surface of this section is from forty to about sixty feet below the plateau of the central section, and a few feet more elevated than that of the southern section.

Opposite the central portion of the city, is what was formerly known as "Bloody Island," a detached portion of land lying near the Illinois shore, of the same level as the great American Bottom. This island has been connected with the American Bottom by causeways across the slough between it and the Bottom for the purpose of throwing the channel of the river towards the St. Louis shore.

In front of the southern section is an artificial extension of the main land, connecting what was once Duncan's Island with the

Missouri shore, the slough which formerly ran between these being now filled up. The eastern river front of this section suffers by the annual abrasion of the river. On the Illinois shore, opposite the city, is the Great American Bottom, the topography of which, and its influence on the health of St. Louis and its vicinity, are well described in Drake's work, to which we may refer our readers for further information.

The water used by the inhabitants of St. Louis, is chiefly that distributed from the Mississippi by the hydrant system. In the districts remote from the river, and in those beyond the corporate limits, well water is used. The well water is impregnated with lime, and, in some localities, is rendered impure by the percolation of the surface drainage. Both the river and well water induce diarrhœa in those who but recently adopt it as a beverage, and from our observation, it has a material influence upon the liability to enteritic affections which is so observable in the entire population of the locality.

It may be readily inferred from what we have stated, that the several sections as described, vary in their relative liability to disease, and to some extent, this liability is irrespective of the social character or circumstances of the local population. As a general rule, the lowest levels constituting the north and south sections are more unhealthy than the central district, but to this we find an exception in the oldest settled part of the south section, which was the original site of the village of St. Louis. This part enjoys, comparatively, a greater immunity from disease than other parts of the same district which have been more recently settled and improved. The south and north sections have been the principal districts of the cholera visitations; but the central section, even in some of its most elevated portions, has not been entirely exempt. The lower lands in this district are as liable to disease, as are the same elevations, or rather depressions in the adjoining sections. The district on its southern or southwestern limits, adjacent to the Gravois valley, and a district in its northwest limit near Biddle, Eighth and Tenth Streets, that has been but a few years reclaimed from inundation of the vernal rains, have been among the principal locations of cholera in its annual visitations, and are subject to paludal fevers and dysentery. The north section is, perhaps, most liable to intermittent and remittent fevers. The south section, though subject to them, is perhaps less so than the northern. The ridge or extension of the middle section that hems in the north section, is

more exposed to these fevers than the adjacent bottom land. The suburban districts beyond the city limits are liable to autumnal and vernal periodic fevers.

The area of the corporate limits of St. Louis is 4.65 square miles, being a front of about five miles along the river, with a depth therefrom of not quite one mile. This area does not include the entire territory and population belonging to the city proper, that must be included in estimates of the diseases and mortality of the locality. Beyond the corporate limits on every side save the east, is an urban district that is in many portions as densely populated as the central part within the limits. Sectional differences as to the terms on which this extra urban district shall be admitted to the privilege and benefits of the older city, have for several years prevented its incorporation into the city. It constitutes as decidedly and properly a portion of St. Louis proper, as the second municipality does a part of New Orleans, or the borough of Southwark a part of Philadelphia. On the north, and immediately adjoining the city limits, it contains the incorporated municipalities of Bremen and Lowell; the former, the limits of which are more contracted than any of the wards within the city in 1850, contained a population of over 5,000, and the portions of the district on the west and south of the city boundary lines are equally as populous as Bremen. The mortuary district represented in the bill of mortality published every week by the Registrar of St. Louis, includes the corporate limits above referred to, and also the extra-urban district for fully a mile and a half north and south, and about two or two and a half miles west of the corporate lines of the city. The cemeteries, the sextons of which furnish the certificates of interments from which the Registrar's weekly tables are made out, all lie beyond the corporate limits at the distance of from one to three miles from the city, and receive the dead of even a more extensive portion of the township beyond the limits than we include in the extra-urban district above referred to.

Population.—The population of the mortuary district (as we may term the incorporated limits of the city with its adjoining district), is not wholly represented in the census returns that are made out biennially under the authority of the city; a very correct estimate of it, however, may be made from the data furnished by the United States census reports of 1850, those of the State census in 1852, and those of the municipal enumerations of population in 1850, 1852 and 1854. These enable us to present the following statistics

of population in the entire district for the four years, over which our report upon the diseases of the locality extends.

Tabular Statement of the distribution of Population in St. Louis and its Environs for four years, from 1851 *to* 1854 *inclusive.*

	Under 5 years.	5 to 10 years.	10 to 15 years.	15 to 20 years.	20 to 45 years.	45 to 60 years.	60 years and over.	Aggregate population.
1851 . .	13,376	10,605	9,016	9,877	50,611	6,252	1,550	100,787
1852 . .	15,238	11,776	9,409	9,760	50,447	5,884	1,521	110,035
1853 . .	17,004	12,829	9,609	9,479	61,764	5,302	1,449	117,446
1854 . .	19,207	19,157	9,944	9,487	68,454	4,688	1,383	127,315

The aggregate population for each year in the above table, is made out by the increase observed on comparing the United States, State, and city census returns, and the enumeration is sustained by the variations recorded in the statistics of immigration in each of the four years. The apportionment of ages in 1850 being taken from the United States census returns, we then take the apportionment in the city census report of 1854, for the population within the corporate limits, and distribute the ages of the extra-urban population according to the distribution of the first ward in the city; this being the ward that, in character of population, ratio of annual increase, &c., approximates nearest the extra-urban district. Having, then, 1850 and 1854 for extremes, we calculate the ratio of each age for each extreme year; and, observing their variations, distribute the ages in the intermediate years, according to the relative increase or decrease of each age observed in the five years. The numerical results in the table are, therefore, only approximative to the true census.

The following are the variations in the ratio of the different ages noticed as between 1850 and 1854.

Ratio.	Under 5 years.	5 to 10 years.	10 to 15 years.	15 to 20 years.	20 to 45 years.	45 to 60 years.	60 years and over.
	per cent.	per cent.	per cent.	per cent.	per cent.	per cent	per cent
1850	12 66	10.32	9.32	9.92	49.014	7.046	1.69
1854	15.08	11.12	7.81	7.45	53.76	3.67	1.08
Variation in 5 years	I. 2.42	I. 0.80	D. 1.51	D. 2.47	I. 4.746	D 3.376	D. 0.61

The increasing ratios are marked "I," the decreasing, "D." The figures applied to the two classes of ages in the two years, represent the ratio of each age to the entire population. The ratio of increase in the five years, it will be observed, has been greatest in the

population of from 20 to 45 years. The largest proportion of the immigrant population in every year has been of adults of this age.

RISE AND FALL OF THE MISSISSIPPI AT ST. LOUIS.

The rise and fall of the river at St. Louis, is graduated by the terms high and low water-marks. A limestone column, commemorative of the great rise in 1844, planted near the curb-stone intersection of the Levee, or Front Street, on the river bank and Market Street, is the point of observation. Low water-mark is 30.5 feet below the curb-stone at the base of the column or directrix. High water is 38.1 feet above low water-mark. The extraordinary high water in 1844, was 7.55 feet above the directrix, or ordinary high water. The great rise in 1851, was 4 feet 9½ inches below that of 1844.

The stage of the water at St. Louis is materially affected by contributions from the Upper Mississippi, the Missouri, and the Illinois rivers. The breaking up of the ice on the upper streams on the close of winter, is usually associated with a moderate rise in the three rivers. The Illinois and Mississippi rising early, and at the same time; the Missouri usually a little later. This rise generally occurs between the last of January and the first of March, sometimes it is earlier, very seldom later. A fair stage of water for navigation is usually maintained for the remainder of the season, the entire country, for the season, being subject to a greater or less distribution of rain. The months of April, May, and June, constitute the "rainy season;" and, in this last month, the great annual freshet in the river arrives. If the rains be extensively and simultaneously distributed in the districts on either side of these rivers at this season, the entire country is liable to the inundation of the bottom lands on their banks. (*Vide* Rain Table in the Appendix.)

The year 1851 is memorable as the date of one of the three great floods that have occurred in the Mississippi and Missouri since the settlement of St. Louis by Laclede, in 1764. The first was in 1785; the second in 1844; the last in 1851. Usually the annual freshet in the rivers commences with the end of May, reaching its maximum by the last week in June; it then subsides. This rise is chiefly contributed from the Missouri; and, except in the years named, has never exceeded the level of the river bank along the front of St. Louis. In these years, however, the lower levels

of the city were inundated, and also the bottom lands all along the Missouri, Illinois, and Mississippi, the farms and other improvements on the latter being destroyed, the stock drowned, and the inhabitants compelled to fly to the bluffs. In the appendix to our report, will be found a statement of the rise and fall of the Mississippi at St. Louis during the flood of 1851.

The annual June freshet is attributed by some observers to the rise created in the Missouri by the melting of the winter snows on the plains of the Upper Missouri, and in the Rocky Mountains. This cause, in some years, undoubtedly contributes in part to the vernal rise, but the wet season that usually sets in in the spring months, is the chief cause. The distribution of the spring rains in the country drained by the Missouri, Illinois, Mississippi, and their tributaries, varies in different years and in different localities in the same season. When these rains are general throughout the entire country on these rivers, a simultaneous rise occurs in all of them, and a flood may be anticipated.

The stage of water in the Mississippi and Missouri, after the subsidence of the June rise, varies, being generally low and difficult of navigation in August, September, and often, also, in October, when a slight rise occurs, which maintains until navigation is suspended by ice in December or January. Usually navigation is only suspended at St. Louis, and to the mouth of the Ohio, by ice for four or six weeks in the middle of winter.

REPORT ON THE YEAR 1851.

Diseases of St. Louis.

The first quarter of the year 1851 presents little of interest, so far as regards the present diseases. The affections ordinarily observed at the period of the year prevailed, but in no greater amount than usual. Affections of the respiratory organs were the most numerous causes of death. Consumption occasioned a mortality of 18 in January, 13 in February, and 18 in March; Pneumonia occasioned 12 deaths in January, 9 in February, 2 in March; Pleurisy, 1 in January, 2 in March; Croup, 5 in January, 5 in February, 2 in March. Affections of the nervous system, inflammation and congestion of the brain, apoplexy, convulsions, mania-à-potu, hydrocephalus, occasioned 77 deaths during the quarter. Typhus and typhoid fevers are the reported causes of 15 deaths in January, 31

in February, and 18 in March. The most commonly prevailing diseases of the digestive organs were diarrhœa and dysentery in small amounts, with a few scattering cases of cholera Asiatica, the latter, as usual in every year of its visitations, foreboding its advent by the dropping off of sentinel cases at its outposts. The total mortality for the quarter from all causes, was 509.

Meteorological Conditions of the Year.—In the appendix at the conclusion of our report will be found statements of the meteorological circumstances of the year. The weekly tables we have prepared from data furnished by George Engelman, M. D., of St. Louis. We have deemed it proper, also, to append to our reports his monthly meteorological tables and remarks thereon, although they have been already published in the *St. Louis Medical and Surgical Journal.* Some of our readers may not have access to that journal, and therefore not be enabled to institute satisfactory comparisons between the prevalence of disease in the year, as noticed in this report, and the meteorological circumstances of the entire year. For this reason we republish some matter which has already been in print. We take this opportunity of acknowledging our obligations to Dr. Engelman for many suggestions that have availed us in our report, and particularly for his aid in the preparation of tables and diagrams.

CHOLERA.—The advent of *Asiatic cholera* in this year, may be dated in the month of April, and, as in previous years, the disease first manifested itself among European immigrants who arrived in the city by way of New Orleans. Cases of the disease occurred among these immigrants on the steamboats on their way from that port. The first considerable arrival of this class was by the steamer Latona, on the 11th. The number on board we are unable to give, but it is certain that the first victims of the disease were contributed from the crowd, as the records of the City Hospital at the time show that eighteen passengers from that boat were admitted to the institution suffering under cholera and ship fever. These diseases prevailed among other immigrants from the boat, who located their residence in different parts of the city. The number of deaths by cholera reported to the city register in this month was nine, all of which occurred amongst recently arrived immigrants. In view of the large influx of immigrants, and fear of an epidemic visitation, the city authorities, on the 28th of this month, ordered a rigid enforcement of quarantine. This measure, in this and subsequent years, consisted in the temporary detention at quarantine grounds

on Duncan's Island, in front, and within a stone's throw of the southern section of the city, of all deck passengers on steamboats, the prescriptive right of the portability of cholera being by municipal wisdom limited to passengers who enjoyed the dignity of eating at the cabin table and sleeping in the berths, or on the oft-crowded cabin floor. Some idea of the immigration pouring into St. Louis may be gathered from the imperfect statistics furnished in the newspapers. On examining files of the daily *St. Louis Republican* for that period, we find that in April, May, and June, 1851, there were registered on 28 of the New Orleans boats at St. Louis, 4,227 immigrant passengers, of which number 3,210 were lately from Europe, and 1,665 from California. In addition to the arrivals by this channel of supply, a number of immigrants equally as great was passed in by the northern lakes, Illinois and Ohio River routes. The principal victims of cholera were those who came by way of New Orleans, where the disease prevailed at this time.

The disease thus established in the city, continued at a moderate and even grade of prevalence, until the middle of May, when a marked increase was noted. From this time, its progress was rapid, the number of cases and deaths multiplying each succeeding week. We have no means of ascertaining the number attacked, as no statistics of cases were exacted from physicians by the public authorities, but we believe an approximate estimate may be very correctly made by taking the weekly mortuary reports, and calculating the ratio of cases at 100 to every 35 or 37 deaths. This ratio must be varied when applied to daily estimates, but from inquiry instituted at the time, we believe it a fair basis of calculation for the relative weekly prevalence of the disease. In the month of June, the disease attained its maximum prevalence, the weekly mortality increasing from 64 in the first week of the month, to 127 in the second, and 153 in the third, when the climax of the visitation was reached. The succeeding week, ending June 29th, afforded a mortality by the disease of 147, suggesting that for the last two weeks of the month, the epidemic was at or near an even, although high range of prevalence.

Comparing its visitation in this year with that of 1849 and 1850, cholera in 1851 commenced somewhat later in the season, attained its climax a little earlier, and declined much more rapidly than in those years. Its decline was signally rapid in this year. The last week of June, as we state above, presented a mortuary record by

cholera of 147, the succeeding week, the first one in July, gave 81 deaths. Until the middle of the month, the rate of prevalence was, though reduced, uniform; the deaths in the second week numbering 79. In the third week, the mortality fell to 48; in the fourth week, it was 28. Few cases occurred in the month of August among the resident population, the weekly mortality by the disease ranging in its four successive weeks, at 14, 10, 12 and 7. Nine deaths by it were reported in the month of September, and two occurring in November made the final sum of its mortality in the year.

Statistics of the Public Hospitals.

There were received into the St. Louis Charity Hospital in this year, 169 cases of cholera, of which 80 recovered, 89 died; a mortality of 52.6 per cent. The cases generally were malignant, the subjects being mostly emigrants who had aggravated their disease by imprudence and neglect in its early stage; many of them entered the hospital in the stage of collapse.

Into the City Hospital, there were received in April 9, in May 7, in June 80, in July 23, and in August 8 cases; a total of 128 cases. Of these, 8 were moribund when brought in, and 22 died within 16 hours of their admission.

Of the 98 surviving 17 hours after admission, 6 died within 24 hours, 43 died subsequently.

Of the 92 surviving 24 hours after admission, 9 died within 3 days, 34 died subsequently.

Of the 83 surviving 2 days after admission, 13 died within 4 days, 21 died subsequently.

Of the 70 surviving 4 days after admission, 4 died within 5 days, 17 died subsequently, 2 had recovered.

Of the 64 surviving 5 days after admission, 4 died within 6 days, 13 died subsequently, 3 had recovered.

Of the 57 surviving 6 days after admission, 1 died within 7 days, 12 died subsequently, 7 had recovered.

Of the 49 surviving 7 days after admission, 11 died within 13 days, 1 died subsequently, 21 had recovered.

Of the 17 surviving 14 days after admission, 1 died within 18 days, 0 died subsequently, 16 had recovered.

Total recoveries 49.

The mortality above is 61.7 per cent. on the entire number, or

56.3 per cent. of such as are not reported moribund when brought in, or 50 per cent. of all surviving 16 hours after admission. The cases were of the same character as those received in the Charity Hospital.

In the above institutions, total admissions were 297; recoveries, 129; deaths, 168; ratio of mortality of total, 56.5 The total, 168, dying in the two hospitals, taken from the total mortality in the city (847), leaves 679 as the mortality in the houses in the city.

Mortality.—The mortality from cholera in St. Louis, in 1851, is, by our enumeration of the official records in the City Register's office, 847, out of an aggregate of deaths from all causes of 4,382. It may be of some interest to compare the mortality of the year with that of the two previous years; the first of the two, 1849, being the great cholera year, and the first of its visitation since 1834. We therefore present the following:—

The aggregate mortality in 1849, was 8,603; by cholera alone, 4,577. The disease was most prevalent in the month of July, the aggregate mortality of the month being 2,668; by cholera alone, 1,895. The aggregate of June, 1849, was 2,440; by cholera alone, 1,799; of May, aggregate, 786; by cholera alone, 517. The maximum weekly aggregate was for the week ending July 2; the aggregate being 951; by cholera alone, 739. On twelve days in the year was the mortality by cholera 100 or over, namely: June 24, 118; June 27, 115; June 28, 123; June 29, 119; July 1, 100; July 2, 105; July 3, 103; July 4, 108; July 9, 101; July 10, 145; July 11, 124; July 12, 105; a total for these twelve days of 1,366. The aggregate of the four weeks that include these twelve days, namely: from June 19 to July 16, amounts to 3,488; the mortality by cholera alone being 2,718. (See McPheeters' Report in *St. Louis Medical and Surgical Journal*, March, 1850. *Vide* Cholera Tables in our Appendix.)

The aggregate mortality of the year 1850 was 4,638; the mortality by cholera, 982. The maximum mortality occurred in July, the monthly aggregate being 1,261; the mortality by cholera, 523.

We are enabled to present an analysis of the age and sex of only 781 of the cholera subjects dying in this year. This is owing to a defect in the records preserved in the Register's office. The returns from two of the city cemeteries for the week ending June 29 (St. Vincent's and City), are left out of the record. We obtained the sum of the interments in the two cemeteries from the health officer's report, of date July 1, 1851, and have added it to our enumeration

of the sum total of the year, but were unable to obtain the details of the missing returns. This will account for the disparity between our enumerations of the mortality in this year and those published in the *St. Louis Medical and Surgical Journal*, in July, 1852.

Mortuary Table, showing the Age and Sex of Subjects dying of Cholera in St. Louis in the months of April, May, June, July, and August, 1851.

	April.		May.		June.		July.		August.		Total.		Aggregate.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
2 years and under . .	...	...	1	1	28	16	9	8	1	2	34	27	61
2 " to 5 years .	...	...	...	1	16	10	6	13	3	...	25	24	49
5 " to 10 " . .	...	1	1	3	13	10	7	6	3	2	24	22	46
10 " to 15 " . .	...	...	1	2	14	9	6	1	...	1	21	13	34
15 " to 20 " . .	...	1	...	1	15	14	7	7	...	1	22	24	46
20 " to 30 " . .	2	...	10	6	70	37	38	22	6	4	126	69	195
30 " to 40 " . .	4	...	9	4	69	25	32	16	7	1	121	46	167
40 " to 50 " . .	1	...	7	1	30	17	20	10	5	2	63	30	93
50 " to 60 " . .	...	...	1	...	19	7	7	8	2	1	29	16	45
60 " and over . .	...	...	...	...	8	9	5	7	1	...	14	16	30
	7	2	30	19	277	154	137	98	28	14	479	287	766

Of the remaining 15 that must be added to make up the total of 781, 2 died in January, 1 in February, 1 in March, 9 in September, and 2 in November; 1 was under two years of age; 1 was between 2 and 5 years; 1 was between 5 and 10 years; 2 were between 10 and 15 years; 1 was between 15 and 20 years; 3 were between 20 and 30 years; 1 was between 30 and 40 years; 2 were between 40 and 50 years; 2 were between 50 and 60 years; and 1 was over 60 years of age. Entire total, males, 488; females, 293.

The ratio of deaths by cholera in this year, to population at the different periods of life, is as follows:—

				Per cent.
Ratio of deaths in subjects	5 years and under,	to population	of same age	0.83
" " "	5 to 10 years of age,	"	"	0.44
" " "	10 to 15 "	"	"	0.39
" " "	15 to 20 "	"	"	0.50
" " "	20 to 45 "	"	"	0.81
" " "	45 to 60 "	"	"	1.50
" " "	60 and over	"	"	2.00

The calculation above for subjects of 20 to 45 years, assumes that the mortality of those between 40 and 50 years is equally distributed between 40 and 45 years, and 45 and 50 years of age. Calculating the ratio of all from 20 to 60 years, we have: Ratio of deaths in subjects from 20 to 60 years, to population of same age, 0.89 per

cent. Taking the aggregate of all ages dying of cholera in this year, we have:—

	Per cent.
Ratio of entire number of deaths by cholera to entire population . .	0.84
" " " " " " mortality . .	19.32

It will be observed that, in this year, the mortality was greatest in subjects over 60 years of age, and in those from 45 years to 60. Under 5 years, and from 20 to 45 years, the liability to death was in about the same degree. The resistance to death was greatest in subjects from 10 to 15 years of age.

COMPARATIVE MORTALITY OF 1849, 1850, 1851.

1849.	Aggregate of deaths from all causes				8,608,	from cholera		4,557
1850.	"	"	"	"	4,688,	"	"	982
1851.	"	"	"	"	4,382,	"	"	847

Prevalent Intestinal Diseases.

Leaving the subject of cholera, we next take up the cognate affections of the intestines, that prevailed at the same time with that disease. These affections were notably influenced by the cholera cause, being increased in their relative prevalence in every year that cholera has prevailed in St. Louis, and further, being so interfused with that disease as to render an analysis of their relative causation a matter of extreme difficulty. The diseases that we thus classify in relation to cholera Asiatica, are, diarrhœa, dysentery, bilious diarrhœa, and cholera infantum. These are endemial in one section of the west, and, we may add, in every section in the Ohio, Cumberland, Tennessee, Wabash, Illinois, Missouri, and Mississippi Valleys, that have their soil superimposed on a limestone formation. Their endemic causes have been aided in operation whenever and wherever epidemic cholera has existed, the relation thus established being not only as to mortality, but also as to non-mortuary prevalence; or, in other words, these diseases have not only been rendered more fatal by the presence of epidemic cholera, but they have been increased in their amount and in the severity of their symptoms.

DIARRHŒA.—This disease was observed to precede the outbreak of cholera in this year, but it did not then prevail to as great an extent as in the two preceding years. Its connection with the cause of cholera is apparent from its first invasion being in April and May, a period of the year when it does not ordinarily occur. This

connection was further manifested by the unusual amount of the disease that prevailed in June and July, when in every year it is a disease of our climate and locality, but not to so great an extent as it was in this and other cholera years. It persisted, however, after cholera disappeared, attaining its maximum mortality several weeks later than cholera, and continued during the autumn, and, to some extent, during the winter months, at which seasons it found its subjects principally amongst the immigrants arriving on the steamboats, or at quarantine, or in the wards of the two public hospitals, and amongst the poorer population who were liable to the ordinary causes of typhus or typhoid fevers. It prevailed, at a moderate rate, in March and April, increased in May and in June; a still greater increase was noticeable in July, and its maximum degree of prevalence was in August. It persisted during the hot weeks of September, and then abated, following a moderate descent in point of numbers attacked during the autumn, and now presenting, from first to last, the protracted current of symptoms and lesions recognized in the term chronic diarrhœa. It was a modification of cholera, while that disease lasted, being its primary stage, which, if not controlled, ran into the more clearly recognized form of malignant cholera. As cholera diminished, it then owed its existence to the same causes that produced its cousin-german dysentery, namely, endemial or climatic causes. As the hot months passed away, its relationship was to typhoid fever, being generated by *ochlesis* (crowd-poison), and selecting its victims from the poorer hovels, and in the crowded wards of the hospitals. Its mode of fatal termination, where cholera prevailed, was in that disease; when dysentery existed, it was often the produce of this latter, terminating in acute ileo-colitis, colitis, or colo-rectitis. Later in the year, its relationship was, as we have remarked, with typhoid fever, its course being now protracted and terminating with ulceration of the intestinal follicles, accompanied by "head symptoms." Its pathology varied with the diseases with which it was associated, being that of cholera during the existence of that disease, that of dysentery in midsummer, and analogous to that of typhoid fever later in the year. Like a hired footman, it changed its livery with the master it served, being in succession blue, crimson, and pale-yellow. In connection with cholera it was a serous diarrhœa, the natural dejections, at first being slightly liquefied, were succeeded by the very fluid or rice-water dejections of cholera. Associated with dysentery it was often a febrile diarrhœa, the dejections at first liquefied by the

mingling of mucus, then, perhaps, changed into those of true dysentery, or it became a hybrid known as "choleraic dysentery," a term applied to cases wherein a sero-sanguinolent intestinal profluvium occurred, a combination of the lesions of three diseases, cholera, diarrhœa, and dysentery; the diarrhœal symptoms being profuse serous dejections; the dysenteric, the mingling of blood and mucus with slight tormina and tenesmus; the choleraic, the tendency to collapse that was so often noticed. This form of the disease was ataxic, typhoid exhaustion generally occurring in its final stage.

Diarrhœa, in this year, found its subjects amongst all ages; its victims were chiefly taken from the extremes of life. Its causation was complex, being a blending of epidemic, meteorologic, and geologic influences. The cause of cholera exerted an influence on it, extreme solar heat, sudden vicissitudes of temperature and humidity likewise influenced it, and no doubt its prevalence, being chiefly in limestone districts, is something more than mere coincidence.

Mortality.—This is exhibited in the following table:—

Tabular Statement, presenting the Mortality by Diarrhœa in St. Louis in 1851, *&c.*

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 1 year	..	..	..	..	..	1	..	..	1	..	8	2	5	5	8	3	1	..	3	..	2	1	1	..	29	12	41
1 to 2 y'rs	..	..	..	..	..	..	..	..	2	1	4	6	3	2	4	3	1	2	..	2	1	..	1	1	16	18	34
2 " 3 "	..	..	..	..	..	..	..	..	..	1	2	1	1	2	..	1	1	2	1	1	..	..	..	1	5	9	14
3 " 5 "	..	1	..	..	..	..	..	..	..	..	3	1	..	1	..	..	..	..	1	..	1	..	1	..	7	2	9
5 " 10 "	..	..	..	1	..	..	1	..	1	1	..	1	2	1	2	1	..	..	1	..	..	..	1	1	8	6	14
10 " 20 "	..	1	1	..	1	..	..	..	..	..	..	2	..	..	2	..	..	..	2	..	..	1	..	..	6	4	10
20 " 30 "	1	..	..	1	3	..	3	1	3	3	3	2	8	1	8	2	8	1	8	..	6	1	3	..	54	12	10
30 " 40 "	1	..	..	..	..	..	2	3	3	1	1	1	..	4	9	..	5	1	2	4	2	1	..	..	25	12	66
40 " 50 "	..	..	..	1	..	..	..	..	..	..	2	1	4	2	3	..	1	1	2	..	2	1	2	..	16	6	22
50 and over	..	..	..	..	..	..	..	1	..	..	..	..	1	3	2	2	1	1	..	1	2	..	..	..	6	8	14
Unk'wn age	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1	..	..	..	..	..	2	1	3
	2	2	1	3	4	1	6	5	10	7	23	17	25	21	38	12	18	9	21	8	16	5	9	3	174	90	264

RATIO OF ABOVE TO POPULATION OF SAME AGES.

	Per cent.
Ratio of subjects under 5 years to population of same age . .	0.73
" from 5 to 10 years " " . .	0.13
" " 10 to 20 " " " . .	0.05
" " 20 to 45 " " " . .	0.22
" " 45 and over " " . .	0.32

The calculation of the ratio of 20 to 45 years, and of 45 years and over, assumes the mortality of 40 to 50 years to have been equal at from 40 to 45, and 45 to 50 years; otherwise we have:—

	Per cent.
Ratio of subjects over 20 years to population of same age . .	0.24

The mortality from diarrhœa in the year was first notably increased about the end of March. From that time up to the first weeks in June, the weekly number of deaths was nearly uniform. An increase took place at the end of June and first of July. The second week in this latter month presents a mortuary return of the disease of 15, a duplication of the number in the week preceding. The five weeks succeeding afford a mortality of 8, 9, 7, respectively. The next week, ending with August 17, gives a mortality of 14. The next succeeding, a mortality of 16, the maximum weekly mortality by this disease during the year. The mortality then diminished, the weekly rate for some time being near that in the month of June, and so continuing until December, in which month the mortality reports are still in excess of those by this disease in the months of the first quarter of the year. The total mortality from diarrhœa in this year is 264, against 274 in 1850, a positive decrease in this year.

	Per cent.
Ratio of deaths by diarrhœa in 1851 to aggregate mortality . .	6.00
" " " population . .	0.26

Dysentery.—This affection, one of the summer and autumn endemics through our section of the West, prevailed this year chiefly during the months of May, June, July, August, September, and October. It began in the warmer weeks of May, varied to some extent in its range with the meteorological changes of the season during the warm months, and was influenced by the general epidemic cause then existing. A marked increase of it occurred in the middle of June, nearly a uniform degree of prevalence then persisted, until the termination of the first half of July; the third week in that month shows the climax of the disease, when it continued to prevail with but little variation until September, when a diminution of it was observed. In the autumn it prevailed in a diminished degree compared with the summer months, but in an increased amount compared with the vernal season. In December, its mortuary result equalled that in May.

All ages were implicated in the attacks of dysentery. In children under five years of age, it was frequent, intractable, and dangerous, being very liable to the supervention of meningitis. The forms assumed by the disease will be noticed in speaking of its prevalence in 1854.

Tabular Statement of the Mortality by Dysentery in St. Louis in 1851, *&c.*

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 2 yrs.	..	..	1	1	1	..	..	..	4	..	5	6	7	8	10	6	7	3	5	3	2	1	..	..	42	28	70
2 to 5 "	..	..	..	..	..	..	..	..	..	..	1	1	1	2	5	2	1	2	2	2	3	2	..	..	13	11	24
5 " 10 "	..	..	..	..	..	..	..	..	..	..	3	1	2	..	3	2	..	..	1	1	1	..	..	1	10	5	15
10 " 20 "	..	..	..	..	1	..	..	1	..	1	3	..	2	1	4	3	2	1	..	1	..	..	..	..	12	8	20
20 " 30 "	..	..	2	1	2	1	2	..	2	..	6	1	4	2	5	7	6	1	3	2	2	..	3	..	37	15	52
30 " 40 "	1	..	..	..	..	..	..	..	1	1	1	2	5	1	3	1	1	..	7	1	4	2	2	1	25	9	34
40 " 50 "	2	..	..	..	..	..	..	..	..	..	..	..	2	5	5	1	2	..	2	..	..	..	1	..	14	6	20
50 " 60 "	..	..	..	..	..	..	..	..	..	..	..	..	2	1	1	2	1	1	3	2	..	1	1	2	8	9	17
60 and over	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	3	..	4	4
Unk'wn age	..	..	1	..	1	..	..	..	1	1	..	..	1	1	2	..	1	..	2	1	..	..	..	..	9	3	12
	3	1	4	2	5	1	2	1	8	3	19	12	26	22	38	24	21	8	25	13	12	6	7	4	170	97	267

	Per cent.
Ratio of mortality under 5 years to population same age . . .	0.55
" from 5 to 10 years " " . . .	0.14
" " 10 to 20 " " " . . .	0.1
" " 20 to 45 " " " . . .	0.18
" " 45 to 60 " " " . . .	0.43
" " 60 and over " " . . .	0.25
Ratio of mortality by dysentery to aggregate mortality of the year .	5.08
" " " population " .	0.26

BILIOUS DIARRHŒA.—Amongst the diseases cognate with those of which we have been speaking, stands prominently bilious diarrhœa, one of the earliest and most prevalent of our summer disorders, in this, and in every year of our residence in the West. Usually, it makes its appearance with the warm weather towards the end of May, becomes very generally disseminated in June, is perhaps a little less common in July, and disappears in August. We have no means of ascertaining the number subject to it in this, or other years; but, we may confidently state that, as a sub-epidemic in years during which cholera prevails, it is rather less frequent than other forms of diarrhœa, and more prevalent than dysentery. Its principal subjects in every year are adult males, whose occupation exposes them to solar heat; adult females are also liable to it, though in but small ratio. In children under 5 years of age, it is more frequent than in adult females, and is often the prodromus of dysentery and cholera infantum. Uncomplicated with colitis or ileitis, it is seldom fatal to the adult in the middle periods of life. In the senile, however, and especially if epidemic cholera prevail, it is to be dreaded, as it may run to fatal termination by exhaustion, or by the true collapse of cholera. The only fatal cases that we have seen in adult subjects, occurred amongst

persons of over sixty years of age, in whom the disease, notwithstanding it might be occasionally or temporarily checked, or, indeed, seem to be overcome, would yet recur and reduce the patient by a mere bilious profluvium. In the middle periods of life, it occasionally degenerates into ileo-colitis, sometimes with gastro-ileitis, and proves fatal. As a general remark, the disease, during its brief reign in the summer months, subjects a very large proportion of the male adult population to its sway, this being apparently due to their greater exposure to the summer heat. It is, when mild, sometimes considered to be a constitutional effort at accommodating the system to the new state of atmospheric circumstances coincident with the advent of the summer months. In its mildest form, it consists of two or three pultaceous or semi-fluid dejections daily, of vitiated bile, of a dark green or nearly black color, passed with tenesmus, and preceded by tormina. Anorexia, slightly furred tongue, disagreeable taste, slight indigestion, with temporary headache or vertigo, and sense of uneasiness in the loins, form the sum of its usual symptoms. The pulse may be but little disturbed; seldom is there irritative fever. Sallow and icterode conjunctiva also attend it. In this, its usual form, the disorder may attack its subjects but once in the season, continue one, two, or three days, and disappear, without any medication being requisite beyond a simple regulation of diet consisting of adherence to the farinacea and strict avoidance of meat and spices. Often, however, it recurs in the same subject at intervals, continuing to repeat its visits every few days, or weeks, while summer lasts, requiring, perhaps, no other than the above treatment. Sometimes, it persists day after day, digestion becoming more and more disturbed, the dejections more frequent, the general malaise and sense of feebleness with pain, or sense of soreness in the posterior muscles of the thighs manifest themselves, and irritative fever will now attend. Seclusion from the solar rays, rest and abstinence, may yet prove curative, without other measures being adopted; generally, however, a few mild, alterative doses of a mercurial combined with opium, will be required to arrest it. These doses, repeated three or four times at intervals of four hours, restrain the dejections for 12 or 24 hours, then, producing two or three jelly-like discharges of vitiated bile, the bowels resume their normal state, to continue permanently in that state, or be again disturbed by renewed exposure to the causes of the disorder. Persistence in the use of animal food, especially if it be salted, increases the liability to the disorder, and

aggravates it when once established. Alcoholic drinks also aggravate it, so, also, will ale and beer. The best preventive and curative in mild cases is good porter or brown stout. This acts as a diluent, protecting the irritable mucous coat of the intestines from the contact of the vitiated bile, as a pro-bilious alterative, by reason of its bitter properties correcting the redundant secretion of the liver; and, as a mild, stimulating diaphoretic, it modifies that abnormal state of the cutaneous functions, which is the first link in the morbid catenation which makes up the disease.

Except in the extremes of life, bilious diarrhœa is seldom fatal. In the senile, it may exhaust the vital powers by the mere bilious profluvia it occasions. If fatal to the vigorous in the adult or middle periods of life, it is generally owing to the supervention of colitis. We have, however, known instances in vigorous manhood in which cerebral symptoms supervened on the disease, the patients perishing with coma, the febrile symptoms that were manifested leading to the suspicion that a blood poison was the cause of death. When it is interfused with dysentery, the dejections show a redundancy of vitiated bile with mucus and blood mingled in them; the compound disorder is then intractable, and, with some practitioners, is known as bilious dysentery. In such cases, we will have colitis, with more or less implication of the mucous coat of the small intestines and stomach. In infants, the disease is, as we have remarked, very often associated with, or rather is the *prodrome* of cholera infantum; in many instances, it presents the same complications and modes of termination as are witnessed in the adult subject. Its mortality is small, its prevalence is great, its exact statistics are unattainable.

Cholera Infantum.—This disease, one of the most prevalent amongst our infant population in the summer months, prevailed in this year, commencing in the warm weeks in May. It varied in its range with the fluctuations of the thermometer, was influenced by humidity, and aggravated by the existence of the cholera cause. It was, however, less prevalent than in 1850, and less fatal. Its maximum rate of invasion was, this year, in July; its mean range in August was much lower than in August, 1850; and its decline in September was more rapid and signal than in 1850. Occasionally it proved rapidly fatal in this as in other cholera years, terminating with all the signs and symptoms of Asiatic cholera. If doubt exist as to the liability of the infant subject to

cholera Asiatica, it can be set at rest by the fact, often attested in St. Louis, in the hospitals, and at quarantine, of its occurrence at that period of life with the same symptoms as in the adult, even the cramps, blueness, suppressed urine, aphonic cry, and subsequent choleraic fever. From our observations of the disease in the infant subject, we are led to the opinion that, in these cases, the tendency to marked implication of the brain in the early stage of the disease, is very prominent. We have seen convulsions often associated with it before the choleraic symptoms had continued three hours. Of one fact, we are convinced, namely, the intolerance of the infant subject to opium in this disease. Of the truth of this, we had ample evidence in cases occurring in St. Mary's Female Orphan Asylum in this and other years.

Cholera infantum, within our experience in this section of country, presents variations from its rôle, as observed in the country, on the Atlantic coast. It is less active in its febrile type, not so much from any reduction or variation in the thermometric range that originates and influences it, as from the constitutional proclivities to disease observed in an infant population, and the endemic causes to which it is here exposed. The causes that, in this section of the West, operate on the adult, producing our climate fevers, influence the infant subject; hence, in this disease, periodicity, more or less marked, is observed in the febrile movements, and a tendency to exhaustion is apparent. The proclivity to tuberculous meningitis is great in our infant population, and in this, and like summer diseases, the supervention of "head symptoms" is very common. The general constitution of the human subject in the valley of the western rivers, is manifestly influenced by causes which give it less the appearance of vigorous ruddy health than is observed in the inhabitants of the Atlantic coast. These causes, operating from the cradle to the grave, influence more or less all our diseases, and, in the disorder under consideration, create a less active type of symptoms, and undermine the constitutional power of resistance to its morbid effects. The local remoræ of blood which occur in cholera infantum here, will not bear, as a general practice, the abstraction of blood for their relief; they are more under the control of revellent remedies, not of a depletive kind.

A form of constitutional irritation to which we may, without being misunderstood, apply the conventional term "malarious," occurs in our district, simulating cholera infantum, and is recorded in its name in the weekly mortality reports. It presents the usual

gastric and intestinal symptoms of cholera infantum, as observed in other sections of the United States. The febrile movements, however, are more recognizably periodic, or, if not distinctly periodic, are yet sub-intrant or intercurrent in their paroxysms, or a wavy, obscure, irritative attends; the surface at one hour being cool, relaxed, and moist; at another, being dry, warm, and harsh, or, perhaps, the general surface will present the concomitants of "irritation" with an exhausted state of the vital powers, the extremities being cool or cold, the face pallid and sallow, the skin on the forehead tense and shining, its venous courses turgid, and arteries beating irregularly; one moment with spurious fulness, at another with marked feebleness and irregularity. The state of the nervous system, in this form of disease is obtunded sensibility, the patient is not so irritable or fretful as somnolent, it may be readily aroused, and its attention briefly directed to any accustomed object; but it will soon relapse into impassiveness or somnolency, as though rest were the desired state. The pupil of the eye is contractile to light, but dilated at the moment the patient is aroused. The globe of the eye is upturned and the lids are semi-apart, while the patient is passive or somnolent; but when aroused, the power of the will over the motions of this organ is yet perfect. The fontanelle is now depressed, but becomes distended as disease advances. The general condition, in this stage of the disease, is one of irritation with exhaustion. We have a passive congestion of the brain, depending on, or, if you please, associated with, debility, but a congestion which yet maintains its tendency to terminate in serous effusion from the meningeal vessels. It is a congestion dependent upon defective contractility of the vascular coats, the most important curative of which is quinine assisted by nutritive and sometimes by alcoholic stimulants, and by blistering.

There are cases, however, the pathology of which is not so susceptible of a facile analysis as the foregoing cases, in which signs of subacute meningitis are early associated with the symptoms of cholera infantum, but in which the vital powers are depressed, and we will have the concurrence of subacute hyperæmia with circumstances that forbid depletion. The curative difficulty, in such instances, is to know how properly to mingle, to alternate, or place in due succession in the treatment two opposite elements, one to abate the existing hyperæmia, the other to support the sinking general powers. We have known cases similar to those we have described as resulting from malarious "irritation," depart from their

simplicity as they advanced, and present signs of subacute meningitis; the patient finally perishing with evident indications of effusion, the result of undue vascular excitement in the circulation of the brain.

Monthly Table of Mortality in St. Louis in 1851, *by Cholera Infantum, Dentition, and Marasmus.*

	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Cholera infantum and teething	4	1	8	5	14	68	115	79	24	26	5	8	347
Marasmus . .	1	4	2	8	1	5	18	14	5	8	10	1	67
Total of these diseases													414

	Per cent.
Ratio of total to entire mortality of the year . . .	9.45
" " " of 5 years and under .	23.69
" " population	8.09

[We have not the time at our command to complete our intended remarks on the infantile mortality of this year, and must refer our readers to an article on the mortality of the year taken from the *St. Louis Medical and Surgical Journal*, which is to be found in the Appendix to this report.—R.]

We here notice *dentitional irritation* as a cause of infantile mortality, for indefinite as the term is, so far as it may be assumed to point to any special pathological rôle, or to any special succession of symptoms of disease, it is yet allied in its relations to the intestinal affections to which we have referred, and to affections of the nervous system of which we intend speaking hereafter.

Teething is entered in the mortuary record in St. Louis as one of the principal sources of infant mortality. The enumeration of death by it has been increased in every year that cholera has prevailed. Its subjects may be set down as perishing of intestinal affections identical with cholera infantum, diarrhœa, or dysentery, or of the chronic form of intestinal disorder termed marasmus, or they perish of true meningitis.

In this connection we also refer to *marasmus*, one of the sources of infantile mortality. The term is very indefinitely used in mortuary statistics, being the registration of the terminal stage of diarrhœa and cholera infantum, of infantile remittent fever, and of true tuberculous or strumous degeneration of the mesenteric glands. We connect the mortuary statistics of this and the foregoing subject with the statistics of cholera infantum, to show the influence of our

summer heats, and the cholera cause upon the entire infant mortality.

FEVERS.—The most uniformly prevalent fever in this year, so far as regards its existence in every month, is continued or typhoid fever. Under the head of continued fever, however, must be included the few cases of true typhus that occur amongst the immigrant population. In general, the term typhoid is applied to continued fever when complicated with enteritic lesions, the term typhus being retained to nominate that form in which cerebral lesions predominate without enteritic lesions, and in which there occasionally occur implications of the pulmonary organs. The term typhoid is, also, sometimes applied to designate the terminal stage of an autumnal endemic fever of a periodic type, in which the distinct paroxysmal type becomes ultimately absorbed or lost in the continued febrile movements established by the supervention of acute or subacute inflammatory lesions, with nervous lesions, terminating the pathological rôle. An exact distinction then is not made in this part of the country between these several different forms or types of fever, so far as regards the terms used to designate them.

CONTINUED FEVER, as recognized in the term typhoid, is of recent origin in our district, its recognition previous to the past twelve or fourteen years being seldom admitted. Within that time, however, its existence has been well marked, and it is evidently on the increase from year to year, seemingly disposed to be substitutive in some degree of our periodic fevers. We have heard no remark regarding our fevers oftener made by physicians in different parts of the State than that which refers to the evident annual increase of continued or typhoid fever over the ordinary endemic or bilious fever of the country, the former being disposed, as it were, to displace the latter as the improvement of the agricultural districts advances.

As seen in our district, typhoid fever, or the fever to which we have reference under such title, in its inception resembles ordinary bilious fever. It is, indeed, often designated typhoid remittent, or typhoid bilious fever. Malaise, anorexia, disagreeable taste, white and slightly furred tongue, disturbed digestion, irregularity of the bowels, sense of muscular soreness and feebleness, variable pulse, dulness of intellect, cephalalgia, vertigo, &c., precede or accompany its commencement. Chilliness and sometimes decided rigor occur, leading perhaps to the suspicion that intermittent or remittent fever is approaching. The muscular soreness or pain is sometimes, like

that of rheumatism, being chiefly felt in the joints, or it may be along the greater nervous distributions, down the back, along the posterior part of the thighs and legs, or along the arms. The chilliness lasts an indefinite or variable period, being sometimes brief, sometimes protracted, yet light for a few hours; sometimes it alternates with flushing of heat. It may be temporarily obviated by measures that retain the animal temperature and exclude the influence of external refrigerating causes. Nausea sometimes occurs in this forming stage of the attack; occasionally there will be vomiting even of bile. The stage of chilliness usually occurs at the early part of the day; sometimes it sets in in the evening or at night; sometimes, as we have remarked, it is brief, and approaches the condition of rigor, and reaction will promptly supervene. In this cold stage, the general surface is cool, the temperature of the extremities is below that of the body, the head is often warm, even hot. The pulse is always disturbed, being usually quick, frequent, and feeble, beating from ninety to one hundred and twenty per minute. We have, in some instances, however, observed it but little removed from the normal standard of frequency, beating at eighty or eighty-five per minute, with *pseudo*-fulness, the calibre of the vessel enlarged, but compressible.

Reaction supervenes upon the stage of chilliness, generally occurring towards evening, the vascular excitement and febrile heat being maintained, or exacerbated during the night, perhaps delirium will now attend. Insomnia or disturbed sleep will also occur. The surface towards morning becomes moist, the symptoms of the previous night diminish, and an imperfect febrile remission is apparent. The pulse, however, in the remission, will be frequent and sharp, and listlessness, or dulness of the faculties, will persist, being more marked in this form than in bilious remittent fever. Diaphoresis or moistness is not diffused over the entire surface with the febrile remission—it will fluctuate as to time, one moment appearing, then subsiding, or it is confined to but a part of the body, perhaps to the head and neck. Thus passes the first day of the disease.

The second day presents the same rôle of symptoms as the first, the chilliness, however, is absent, or recurs in a less marked degree than on the previous day, and its time of return may vary from the day before. Perhaps the paroxysm of symptoms will be later in commencing or in increasing, and may be lighter than that preceding, and appearances are in favor of the disease being a double tertian intermittent, somewhat irregular in its display. The remis-

sion of symptoms on the third day may be more perfect than that of the second day, and the exacerbation of the previous night not so intense as on the first night. The febrile reaction on the third day, however, will be generally more exacerbated than on the preceding days, and the seemingly paroxysmal type of the disease will now be lost, or if remissions occur, it will be at irregular hours of the day, and at irregular intervals, two or three or four days elapsing sometimes without any remission in the febrile symptoms being observed. The remittent type, however, is sometimes retained even to the fifth or seventh day; on the other hand, it may not appear after the first day; generally, however, the delusion as to the fever being remittent is maintained to the third day. The progress of symptoms after that time may be illustrated by the following details of a case taken from among many recorded in a case-book.

Subject, ætat. 20; female. Symptoms for the first three days as above described. Fourth to eighth days, those of continued fever; no morning remission apparent since the third day; delirium at night; skin burning hot, dry and harsh; pulse 112, full, soft; tongue slightly moist, covered in centre with thin white fur, its edges red, extremity pointed, protrusion slow, imperfect and tremulous, the edges upturned, centre depressed or cupped, tenderness of umbilical region, slight diarrhœa, appearance besotted. Ninth day, general symptoms as yesterday; pulse small, unequal, 112 per minute; expression stupid, eyes dull and slightly injected, face suffused a dusky red, sense of exhaustion great, tongue contracted, dry, and shrivelled, edges red, pointed, central portion still white-coated, papillæ salient, subsultus, muttering delirium; patient soporous, but readily aroused, answers questions coherently when aroused, no pain complained of, vertigo on rising, urine scanty and high colored, yellow diarrhœa, tenderness in right iliac space. Tenth day, symptoms as yesterday, gums pink, and firm, no sordes, lips dry and fissured. *Nocte*, nervous lesions aggravated, general muscular tremulousness, tinnitus aurium, deafness, bowels restrained, febrile symptoms increased. Eleventh day, crepation of symptoms; pulse 120, small and feeble; tongue becoming darker in the centre, bowels again loose, dejections yellow fluid. Twelfth day, somnolency, almost stupor, face pallid, body attenuating, muscular exhaustion great, much jactitation, extremities cold; pulse feeble, irregular, 125; tongue black, dry, glazed, fissured, red-edged, pointed; sordes accumulating, vertigo and deafness increased, delirium diminished as stupor increased; eyelids semi-

apart, globes rotate spasmodically during sleep, pupils vibrating, expression dull, coma alternating with temporary excitement, respiration frequent, irregular and suspirous, with stertor, action of heart tremulous, parietes of chest vibrate from its impulses, epistaxis. Thirteenth day, *Mane*, slight remission of symptoms, pulse less feeble, 100 per minute, soft; skin cool and moist; but two dejections from bowels in 24 hours. General symptoms improved. *Nocte*—febrile exacerbation. Fourteenth day, symptoms exacerbated during the morning; *post meridiem*—free sweating, skin warm, pulse fuller, soft, and 100 per minute; an irregular remission; exacerbation again at night, bowels again loose. Fifteenth day, symptoms as on previous day. Sixteenth day, *Mane*, skin cold and dry; pulse small, feeble, irregular, 120 per minute; extremities tremulous, no delirium, faculties dull, tendency to sopor diminished, sense of muscular feebleness great; profuse hemorrhage from the bowels supervened during the day, unattended with pain or tenesmus; abdomen much distended; surface cold and clammy; pulse very feeble, frequent, and irregular. It will be unnecessary to trace the progress of the case further, as we have already stated sufficient to give a general idea of the symptoms. Referring the hemorrhage to ulceration of the bowels, the practice adopted was to paralyze the peristaltic movements, with a view to give nature a chance of closing the ulcerated points by plastic exudation. Three grains of opium, with two of acetate of lead, were administered every three hours for one day; the opium was then reduced to two grains, and continued every third or fourth hour, p. r. n. for several days, and nutritive stimuli were exhibited. The record, on the 23d day of the case, states the condition of the patient to be improved; skin warm and soft; pulse 80, full, round, and soft; tongue clean but very pale, appetite improved, feebleness diminishing, no alvine dejection since the 18th day; an enema now exhibited, produced a copious dejection of scybalous, dark-colored fecal matter. From this date the patient slowly recovered under the exhibition of the citrate of iron and quinine.

An idea of the general range of the symptoms in cases of typhoid fever, may be taken from the case we have detailed. The disease, however, varies in different subjects in the time occupied by the evolution of the various symptoms—in some terminating on the 14th, 17th, or 21st days; in others, extending itself over four, five, or even six weeks. Its proportionate mortality, we have no means of determining accurately, but it is more frequently fatal than our

bilious remittent fevers. In the variable months of spring and autumn, it is occasionally complicated with pneumonic symptoms; oftener, however, its complication is bronchitis; in rare instances, pleuritis. In the winter months, it is more liable to those pulmonary complications constituting that form of disorder popularly known as "winter fever."

The general conclusions we would advance in regard to the disease as noticed by us in this section of the west, are, that typhoid fever, analogous in its general symptoms, and to some extent in its pathology, to the disease described by the French authorities, prevails in this part of the country, and is annually increasing, superseding to some degree our endemic bilious fevers; that it is influenced, to some extent, by the causes that produce our bilious fevers, and for that reason, often manifests marked morning remissions, and evening or nocturnal exacerbations in its symptoms; that its most prominent lesions are found in the mucous coat of the intestinal tube, but not invariably in the solitary and conglomerate glands; that cutaneous eruptions, either of petechiæ, vibices or "*tâches rouges*," are frequently seen in the disease, but are by no means its invariable accompaniment; that the date of time in the fever, at which the enteritic complications and cutaneous eruptions appear, is liable to great variation; that, in some instances, this form of fever often supervenes in well-marked regular bilious remittent fever; that, in other instances, the symptoms of the two diseases (bilious remittent and typhoid fevers) are so interfused as to render the distinction as to which form of fever predominates, a matter of difficulty, if not a matter of impossibility.

Treatment.—Our remarks on this topic shall be brief, and are made to notice two methods of treatment that are in vogue here, one of which is expectant, the other may be termed the abortive method. The former consists in treating the symptoms of the fever as they arise with saline diaphoretics, refrigerants, and perhaps mild laxatives, the complications, as they supervene, being met by a cautious employment, occasionally of local depletion, more frequently of blisters and the use of laxatives, anodynes, and such other remedies as the circumstances of the case may indicate. A milder expectant course even than this is sometimes adopted, consisting of the employment of diluents with scarcely any other medication than the adventure of a saline diaphoretic. This course is based on the assumption that the disease is self-limited, that it will run a definite course, present nearly an uniform series of pa-

thological changes, that can be but slightly, if at all, abridged by art, and that death or recovery will take place as it may please nature to select. That the physician is sometimes cast upon a very limited combination of curative resources in this disease, is true, especially of cases wherein it appears as simple fever, uncomplicated with any marked local lesion, and of a type purely continued fever. Here no indications exist that can be confidently obeyed, the nature of that disease termed simple fever being too obscurely comprehended, if it be at all understood, to afford definite ideas as to the manner its cure is to be effected. But in typhoid fever, which tends almost always to the superinduction of an entire complication, art is of some avail. It is the local complications that are the source of danger to the patient, and these can be modified and restrained in their progress. Cautious topical depletion, where the general strength and well sustained state of nutrition will admit of it, is of avail, and the effect of the remedy can be assisted if it be followed by the employment of topical revellents. The mucous enteritis, when existing, may be further influenced by mild mercurials, in small alterative doses, combined with anodynes in the early stage; later, the tendencies of the inflammatory process to result in suppuration, and eventually in ulceration, must be held in view, and the indications then will be to alter the morbid state of the mucous coat by agents that modify its secretion and influence the local nutrition of the diseased part. We can effect something in this stage by mild laxatives, combined with, or succeeded by, anodynes; and if suppuration or ulceration exist, the mineral astringents will tend to alter the morbid process. Anodynes may be even freely given in this stage, for we have often seen that the nervous lesions, which are sometimes excessive, depend more on a neuropathia, which can be allayed by nervous sedatives, than on cerebral hyperæmia that is increased by them. Even now, if the nutritive powers are depressed, or the general vital energies are failing, or later in the disease, when these circumstances will attend, nutritive stimuli may be employed, indeed they are requisite to aid the local curative changes in the diseased part, or the plastic changes that must there occur in order that the local complication may be restored from the state of disease to that of health. They are needed likewise by the general system under the reducing effects of the disease. We have seen cases of immigrants, in which a continued fever with typhoid symptoms becoming complicated with the signs of ileitis on the 7th, 8th, or 10th day, yielded prompt-

ly to a few doses of blue mass, with Dover's powder and krameria (given to alter the local morbid process, and restrain the action of the bowels), followed by or alternated with the use of porter, and this so frequently, and so often in contrast to what we have observed of the more passive methods of treatment, as to convince us that the disease can be limited by art. The abortive method of treatment consists in placing the patient, early in his attack, under the influence of quinine, to interrupt the morbid catenation that constitutes the disease; a plan of treatment extensively applied and ably advocated by Dr. E. D. Fenner, of New Orleans. We have but little testimony of a positive and satisfactory character beyond our own experience to offer as to the relative merits of the expectant and abortive methods of treatment. The communications that we have received from different sections of the State, speak of the efficiency of quinine in the so-called typhoid fevers, but the details of the manner in which the remedy is employed are not given in such form that deductions can be offered from them. Our own experience enables us to attest the superiority of the quinine treatment in many instances, but the results in our hands have not been as fully encouraging to us as those we witnessed in the wards of the Charity Hospital in New Orleans, in charge of Dr. Fenner; we must acknowledge, however, that our experience with the remedy has not been as ample as that of Dr. F. We have seen the fever successfully subjugated in its early stages by quinine; we have, on the other hand, seen the disease evidently exasperated by it. We have known the quinine prove injurious in the early stage of the disorder, and very promptly efficient in the same cases at a later period. We have, in some instances, seen but negative results from its employment. We have been led to certain deductions in regard to its use, and to these we now adhere. If in the early stage of the disease, we find but slight reason to apprehend follicular enteritis, if there be a moist state of the tongue, and an occasional tendency to moisture of the general surface, and especially if a remission of symptoms be noticeable in the morning, we test the curability of the case by quinine, exhibiting it in combination with Dover's powder or opium. In the exhibition of mercurials alternately with or combined with the quinine, we are guided by the same circumstances as Dr. Fenner. If diaphoresis is maintained by the remedy, and the nervous lesions are not exasperated, we persist in its prescription, with the expectation of its proving successful. We maintain the influence for two, three, or four days,

or until an evident return of functional balance in the system recurs, omitting the mercurial when its probilious effect is established. On the other hand, if, as sometimes occurs, the skin becomes hot and dry under the use of the quinine, the delirium, jactitation, and subsultus increased, and the tongue takes on a dry, red-edged, and pointed appearance, we are then convinced that the remedy is not appropriate to the case, and withhold it for a more opportune moment. Later in the disease, the return of moist and cool surface, with the tongue moist and clearing off of its fur from the edges, and especially if remission of the general symptoms occur, we again resort to the quinine, continuing it with opium and ipecacuanha. We now expect that, the local lesion in the intestines being subdued, the febrile element in the disorder will give way under the sedative influence of the combination, the irritated play of the heart and arteries be checked, the nervous excitation be subdued, the secretions be restored, and general nutrition be improved. We believe the disease depends on a blood poison; that the local lesions which complicate it are secondary or consecutive to the morbid state of the blood, and we know of no remedy more efficient in opposing pyemia and analogous septic conditions of the blood than quinine. It is not the sulphate of that alkaloid to which we give the preference in treating typhoid fever, but the ferro-cyanate. This salt is more promptly sedative in its influence over the circulation than is the sulphate of quinine, and is not so liable to induce the peculiar and often distressing neuropathia of quinine, that results from the full exhibition of the sulphate. Idiosyncrasies that do not tolerate the sulphate, will readily endure the full effects of the ferro-cyanate, and we have often found that subjects who will not tolerate a quinine salt uncombined, will sustain its use without inconvenience if it be combined with opium. We have been taught by experience to discard the use of small doses of quinine in this fever, having often witnessed irritant effects on the nervous and vascular systems to result from their use, which on a change of the larger doses, are no longer perceptible.

(The intercurrence of cholera and typhus was well marked in cases occurring this year under our notice in St. Mary's Female Orphan Asylum. The subjects attacked first complained of vertigo; no diarrhœa preceded this symptom; syncope, more or less marked, then occurred, followed by vomiting, purging, cold and inelastic surface, ischuria, cramp, &c.; in short, cholera, with its stage of collapse, was the opening stage of the disorder. There was a remark-

able want of correspondence between the prostration and amount of discharges, the prostration being intense, the profluvium not great enough to account for it. In some cases, convulsion preceded syncope. In all that reacted, the choleraic typhoid fever was protracted. In the first cases, opium was employed; it deepened the stupor in these to a notable degree compared with those in which it was not used, and they were the only fatal cases. The treatment of the subsequent cases was the mustard emetic, followed by saline solutions, the carbonates of ammonia and soda, with oxymuriate of potash. The outbreak of cholera and typhus lasted in the institution for two weeks; subsequent to this, cases of typhoid fever occurred among the inmates.)

Periodic Fevers.—The most prevalent fevers to which the adult is subject in our climate, are those known under the title of bilious fever, bilious remittent fever, intermittent fever, and congestive fever. It is these that constitute a large proportion of the physician's business in the summer and autumn months. Bilious, or bilious remittent fever, appears in June—persists during July, and abates in August, when it is displaced by climatic fever of the intermittent type. In some years, the remittent form gives way to the intermittent even in July, but it is almost invariably the case that intermittent predominates in August and September. These different types are here generally viewed as results of the same endemic or climatic causes; the two forms being interlaced, often prevailing together in the same season, and their types are convertible in the same subject from one into the other. Often what is sometimes termed a remittent fever, is really a subintrant intermittent, with the cold stage suppressed, or imperfectly displayed.

The subject of these fevers, in all its various bearings as to prevalence, causation, variation and conversion of form or type, and complications, has been so ably discussed in Drake's monumental work on the prevailing diseases of the interior valley of North America, that we are indisposed to occupy time by any disquisition upon the details that have been amassed by the patient and earnest labor of the distinguished author of the work referred to. We shall, therefore, content ourselves with presenting the annual mortality by these forms of fever, and, in connection with it, refer our readers to Dr. Engelman's appended paper, at the close of our report, on "The Meteorological Causes of our Climate Diseases." We may here remark that the term "congestive fever" has, with a great number in

our section, no fixed meaning or application, further than that it is applied to designate the fatal forms of autumnal fever, whether remittent or intermittent. When properly limited in application, it belongs to the algid form of intermittent fever, which, within our observation, is invariably a subintrant, double tertian fever, the paroxysms coalescing with each other, and often presenting some aberration from the simple form of intermittent, as, for example, in the apparent absence of a regularly recurring cold stage. It is, properly, the pernicious fever described by Alibert and other French and Italian authorities.

Table showing the Mortality by Remittent, Intermittent, and Congestive Fevers during the year 1851, *together with the Age and Sex of the Subjects.*

	Under 10 years.		10 to 20 years.		20 to 30 years.		30 to 40 years.		40 to 50 years.		50 to 60 years.		Age unknown.		Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
January	2	...	...	...	1	...	...	...	...	...	2	...	...	...	5
February	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
March	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
April	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
May	1	...	...	1	3	...	1	...	...	1	3	...	...	...	10
June	...	...	...	...	2	1	1	...	1	...	1	...	1	...	7
July	...	...	1	...	4	3	3	2	1	2	2	2	5	1	26
August	1	1	...	1	8	3	4	1	2	...	1	1	5	...	28
September	1	2	2	...	4	3	6	1	3	...	6	2	5	...	35
October	3	1	...	1	8	2	6	2	2	...	1	1	5	1	33
November	1	...	1	...	3	1	1	...	...	...	2	1	2	...	12
December	1	1	...	...	...	...	1	...	2	...	1	...	2	...	8
	10	5	4	3	35	13	24	6	11	3	19	7	25	2	167

Mortality by bilious, intermittent, and congestive fevers, form 3.81 per cent. of the entire mortality of the year.

Ratio of Mortality by above Fevers in entire Population.

	Per cent.
Ratio of subjects under 10 years of age to population of same age	0.062
" from 10 to 20 " " "	0.088
" " 20 to 45 " " "	0.016
" " 45 and over " " "	0.420

From the above, it appears that the relative mortality of climate fevers is the lowest form of any mortuary cause until middle age is reached, when the mortality is largely augmented.

Weekly Meteorological Table for St. Louis, for the months of April, May, June, July, August, and September, 1851. Observations made by GEORGE ENGELMAN, M. D.

1851. WEEK.	BAROMETER—CORRECTED FOR TEMPERATURE. ENGLISH MEASURE.						
	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Lowest.	Highest.
Mar. 31 to April 6	29.451	29.478	29.431	29.883	29.436	28.765	29.746
April 7 to " 13	29.643	29.647	29.565	29.612	29.617	29.119	30.005
" 14 to " 20	29.430	29.458	29.418	29.439	29.434	29.061	29.668
" 21 to " 27	29.549	29.569	29.500	29.518	29.534	29.372	29.788
" 28 to May 4							
May 5 to " 11							
" 12 to " 18							
" 19 to " 25	29.438	29.439	29.397	29.422	29.424	29.095	29.744
" 26 to June 1	29.454	29.489	29.410	29.436	29.447	29.314	29.572
June 2 to " 8	29.320	29.336	29.301	29.306	29.316	29.096	29.533
" 9 to " 15	29.461	29.514	29.483	29.498	29.489	29.408	29.578
" 16 to " 22	29.441	29.457	29.566	29.438	29.478	29.248	29.625
" 23 to " 29	29.351	29.372	29.318	29.346	29.345	29.083	29.514
" 30 to July 6	29.442	29.468	29.425	29.349	29.421	29.282	29.570
July 7 to " 13	29.410	29.451	29.401	29.431	29.423	29.304	29.604
" 14 to " 20	29.415	29.434	29.400	29.412	29.415	29.287	29.602
" 21 to " 27	29.484	29.520	29.439	29.438	29.469	29.328	29.592
" 28 to Aug. 3	29.393	29.407	29.364	29.406	29.392	29.206	29.577
Aug. 4 to " 10	29.483	29.535	29.462	29.477	29.489	29.320	29.612
" 11 to " 17	29.418	29.465	29.412	29.446	29.485	29.229	29.591
" 18 to " 24	29.457	29.484	29.424	29.439	29.451	29.294	29.600
" 25 to " 31	29.506	29.557	29.500	29.533	29.524	29.354	29.649
Sept. 1 to Sept. 7	29.516	29.551	29.473	29.482	29.505	29.378	29.619
" 8 to " 14	29.543	29.578	29.513	29.545	29.545	29.474	29.704
" 15 to " 21	29.661	29.682	29.618	29.623	29.646	29.468	29.795
" 22 to " 28	29.549	29.580	29.510	29.550	29.547	29.332	29.711
" 29 to Oct. 5	29.546	29.590	29.527	29.444	29.527	29.420	29.691

Weekly Meteorological Table for St. Louis—Continued.

1851. WEEK.	OPEN AIR THERMOMETER. FAHRENHEIT.							CLEARNESS OF SKY.					NO. OF DAYS.		
	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Lowest.	Highest.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Fair.	Variable.	Overclouded.
Mar. 31 to April 6	44.7	49.6	59.6	51.7	51.4	34.5	70.0	3.4	5.0	4.7	6.1	4.8	3	3	1
April 7 to " 13	46.1	53.4	60.9	48.1	52.1	41.0	69.0	5.0	7.1	6.0	5.0	5.8	4	2	1
" 14 to " 20	41.4	50.5	56.7	48.2	49.2	37.0	64.0	6.7	5.3	4.0	8.7	6.2	3	3	1
" 21 to " 27	46.7	57.7	67.7	53.6	56.4	37.0	76.0	8.1	8.3	7.3	7.9	7.9	6	0	1
" 28 to May 4	43.7	52.6	58.6	48.1	50.8	29.0	67.0	3.9	5.1	6.1	7.0	5.5	2	5	
May 5 to " 11	55.6	67.1	77.1	66.4	66.5	37.0	90.5	6.0	3.0	5.0	4.0	4.5	1	6	
" 12 to " 18	64.0	73.0	80.2	67.3	71.5	56.0	91.0	5.5	4.4	3.2	5.0	4.5	2	4	1
" 19 to " 25	61.4	71.1	79.2	66.1	69.5	51.0	87.0	4.6	5.7	6.6	8.2	3.5	4	2	1
" 26 to June 1	69.3	82.3	88.4	73.5	78.4	67.0	92.0	6.7	7.1	6.6	8.6	7.2	4	3	
June 2 to " 8	67.9	70.9	77.9	67.9	71.1	61.0	85.0	2.4	3.3	4.7	3.0	3.3	2	4	1
" 9 to " 15	63.9	71.2	76.4	67.4	69.7	54.5	82.0	2.7	2.3	4.1	3.1	3.0	2	2	3
" 16 to " 22	67.6	75.3	82.4	70.5	73.9	65.0	86.0	3.9	3.7	4.4	6.0	4.5	2	5	
" 23 to " 29	67.2	78.1	85.4	71.6	75.6	62.0	92.0	8.4	7.6	6.4	6.1	7.1	4	3	
" 30 to July 6	64.9	71.6	78.4	70.6	71.4	54.0	89.0	4.7	4.6	4.9	4.9	4.8	2	5	
July 7 to " 13	71.8	82.9	89.8	77.6	80.5	66.0	95.5	6.9	7.0	6.1	8.0	7.0	6	1	
" 14 to " 20	70.0	82.4	86.5	74.4	78.3	62.0	97.0	7.6	7.1	6.6	9.0	7.4	5	2	
" 21 to " 27	69.6	79.9	89.3	76.8	78.9	63.0	96.5	6.6	5.6	5.7	6.4	6.1	4	2	1
" 28 to Aug. 3	70.2	79.1	85.7	72.4	76.9	64.0	95.0	3.9	4.4	4.4	4.3	4.2	3	4	
Aug. 4 to " 10	68.8	79.1	79.2	73.1	75.0	63.5	88.0	4.3	2.1	3.0	4.4	3.4	0	6	1
" 11 to " 17	71.6	80.1	86.6	75.5	78.5	64.0	94.0	4.9	5.9	4.9	6.9	5.6	3	4	
" 18 to " 24	66.2	75.1	83.0	70.2	73.6	64.0	90.0	6.1	5.1	5.9	6.9	6.0	4	2	1
" 25 to " 31	67.4	76.3	81.9	72.7	74.6	61.0	86.0	5.6	4.4	4.6	6.1	5.2	2	5	
Sept. 1 to Sept. 7	71.9	82.6	91.9	77.5	80.9	69.0	94.0	9.5	9.3	9.1	10.0	9.5	7		
" 8 to " 14	73.0	81.1	86.6	75.3	79.0	65.0	93.0	8.3	7.0	5.9	7.0	7.0	5	2	
" 15 to " 21	62.0	69.6	80.1	69.0	70.2	55.5	83.5	5.3	5.3	5.1	8.0	5.9	3	4	
" 22 to " 28	54.3	62.1	69.5	56.6	60.6	37.0	87.0	6.1	7.1	7.0	7.6	6.9	5	1	1
" 29 to Oct. 5	51.3		74.4	58.4		41.5	81.5	8.0	9.1	9.7	8.4	8.8	7		

Weekly Meteorological Table for St. Louis—Continued.

1851. WEEK.	RAIN. Days.	RAIN. Hours.	RAIN. Quantity.	THUNDER-STORMS.	WINDS DURING WEEK.[1]
Mar. 31 to April 6	3	8½	0.98	2	N.E. 2, S.W. & W. 3, S. 2 3, W. 4 5 2.
April 7 to " 13	3	19½	1.74	1	W. 4 3, S. 2, N. 3 2, N.E. 2, S.E. 2, W. 3.
" 14 to " 20	1	5	1.00	1	N.W. 3, E. 2, S. 2, W. 2, N.W. 3, N. 3.
" 21 to " 27					N.W. 2, S.W. 2, S.E. 2, W. 3.
" 28 to May 4	1	4	0.38		N.E. 2, W. 5 3 2 4, S.E. 2, S.W. 2, N.W. 3.
May 5 to " 11	1	1	0.05		S.E. 2 3, S. 3, S.W. 3.
" 12 to " 18	3	10¼	2.78	3	N.W. 2, N.E. 3, S.E. 3, S. 3, S.W. 2, S.E. 2.
" 19 to " 25					W. 3, S.E. 3, S.W. 4, N.W. 4 3, E. 2, S.E. 2.
" 26 to June 1	1	½	0.10		S.W. 2, S.E. 2 W. 3, S.E. 2, S.W. 2.
June 2 to " 8	3	6¾	2.11	5	N.E. 2, S.W. 3 2, W. 4.
" 9 to " 15	3	8	2.17	6	N.W. 3, S. 3, S.E. 2, N.E. 2, S.E. & E. 2.
" 16 to " 22	2	2¼	0.75	2	N.E. 2, S.E. 2, S.W. 2, S.E. 2, W. 3.
" 23 to " 29	2	2	1.15	3	N.E. 2, S.E. 2, W. 4, S.E. 2 3, W. 4, S.W. 2.
" 30 to July 6	2	1¼	0.06	1	S.W. 2, S.E. 2, N.W. 2, N.E. 3, W. 2, S.E. 2.
July 7 to " 13	1	3	0.59		W. 3, S.W. 3 4, W. 3, S.E. 2, S. W. 2.
" 14 to " 20	2	1½	0.52	2	S. 2, S.E. 2, N. 3, W. 3 6, N.W. 3.
" 21 to " 27	2	8	0.89	1	S.E. 2, W. 4, S.E 2, W.S.W. 3, S.S.W, 3.
" 28 to Aug. 3	3	7½	4.16	1	S.W. 2 3, S. 2 3, W. 4, N.W. 2, N.E. 2.
Aug. 4 to " 10	2	4	1.97	5	N.W. 3, S.E. 2, S.W. 2 3, N.W. 2, S. 2, N.W. 2, S.E. 2.
" 11 to " 17	3	4¼	2.60	6	W. 2, S.E. 2, W. 3, N.E. 2, E. 3, S.E. 2, N.W. 3.
" 18 to " 24	1	½	0.08	1	N.E. 2, S.E. 2, W. 2, S.E. 2.
" 25 to " 31	1	½	0.42	1	N.E. 2 3 2, S.E. 2, S.W. 2, S.E. 2 3.
Sept. 1 to Sept. 7					S.E. 2.
" 8 to " 14	1	2	0.06		S.E. 3 2 3, S.W. 2, N. 3 4.
" 15 to " 21	1	¼	0.07		N.E. 3, E. 2, S. E. 2 3 2.
" 22 to " 28	2	12¼	0.36		S.E. 2, N.W. 3, N. 3, W. 3 4, N.W. 3 4 2.
" 29 to Oct. 5					N.W. 2, S.W. 2, S.E. 2, W. 3, N. 3, E. 2.

(*Vide* tables for 1854, for explanatory remarks.)

[1] For scale of winds, see tables for 1854.

Weekly Mortuary Reports in St. Louis for the months of April, May, June, July, August, and September, 1851.

Week ending Sunday	Weekly aggregate of all ages.	Total of 5 years and under.	Total of cholera.	Total of diarrhœa.	Total of dysentery.	Total of cholera infantum.	Total of periodic fevers.	Total of continued fevers.
April 6	47	15	1	3	...	...	...	5
" 13	51	22	2	1	1	...	...	6
" 20	35	12	3	2	1	...	...	3
" 27	46	17	3	2	1	...	1	4
May 4	51	21	...	2	...	...	3	4
" 11	47	22	1	3	1	1	3	2
" 18	60	22	5	1	3	...	1	3
" 25	62	28	20	5	3	1	1	5
June 1	85	35	24	6	4	9	2	3
" 8	122	47	64	6	1	12	2	2
" 15	220	75	127	15	6	9	3	6
" 22	273	100	153	6	15	14	1	8
" 29	294	114	147	14	9	14	1	...
July 6	219	100	81	14	9	19	8	12
" 13	216	99	79	13	8	21	4	8
" 20	242	104	48	11	21	22	8	9
" 27	160	94	28	8	11	21	6	10
Aug. 3	135	70	14	9	10	13	3	2
" 10	98	58	10	7	9	17	2	3
" 17	112	59	12	14	10	11	9	4
" 24	94	32	7	16	18	5	8	6
" 31	81	31	2	4	15	7	11	9
Sept. 7	75	25	5	5	3	2	9	12
" 14	97	36	2	8	11	2	10	10
" 21	85	38	1	8	7	6	9	2
" 28	82	28	1	5	8	...	7	4
Oct. 5	68	31	...	7	7	...	9	2

Prevalent Diseases in the State beyond the limits of St. Louis.

We have but limited details to present of the counties in the agricultural and mining districts of the State, comparatively few communications having been received, although we addressed a large number of the physicians by circulars soliciting information. An abstract of the information furnished in reply to our circulars will be found in the succeeding pages; but many communications sent to us were of no avail in our office, as they were so meagre as scarcely to afford a single fact or deduction of interest. One fact, however, is prominently set forth in letters that we have received, and is sustained by personal communication which we have had with physicians from every section: it is, that the diseases of the chief commercial city are the diseases of the State; that the epidemics we describe in this and other years as prevailing in St. Louis, whether foreign, local, or endemic in their origin, or contagious, infectious, or meteoratious, are disseminated throughout

the different sections of the entire State.* What we set forth in the preceding and succeeding pages may, therefore, be extended beyond the local limits to which it is specially applied; the inference may be safely deduced that while cholera, diarrhœa, dysentery, typhoid, and climatic fevers, etc. prevailed in St. Louis and other counties on the Mississippi and Missouri Rivers, they likewise extended their range over every county in the State, from the Arkansas to the Iowa line. The matter that we present in the following pages refers to the counties that are the best improved and most populous of the agricultural districts.

Cholera in the Counties on the Missouri River.

In offering our remarks on the diseases which prevailed in parts of the State beyond the limits of St. Louis County, we shall take up the subject of cholera separately from the rest, and follow it in its selected pathway into the interior, thus connecting its history with that we have given of its prevalence during this year in St. Louis. We shall trace it along the two great navigable streams, one of which traverses the southern part of the northern half of the State, from the western boundary to the Mississippi; the other extends along the entire eastern line of the State, separating it from its neighbor, the State of Illinois.

It was principally in the counties on either side of these rivers that the disease prevailed; it is said that by these river channels it was imparted to the interior agricultural districts. We have this certain and prominent fact manifest in its history, and which is true, not only of the year 1851, but of every year it has existed as an epidemic in this section of country, namely, that cholera selects its pathway along the most frequented routes of travel, accompanying emigrant crowds in their progress, and infesting their camps whenever they rested on their toilsome journeys. *Wherever a much frequented route is newly opened, thither will the disease march, and thus gain access to detached communities, which, without this means of communication, might have continued exempt from its ravages.* We have an instance in support of the truth of this in the importation of cholera among the Indian tribes on the upper Missouri, which were, for the first time, visited by the disease in 1849, and to which it was conveyed by the crowd of emigrants in that year who opened

* An exception occurs as to cholera infantum, which seldom prevails in rural districts.

that route to California. These emigrants suffered severely from cholera on their voyage up the Missouri; in their camps at the starting-points of their overland journey in the neighborhood of St. Joseph's, Weston, Council Bluffs, Independence, and Kansas; and for many weeks after they had taken their march into the interior or Indian territory. The aboriginal tribes with which these emigrants were in contact, were infested by the disease, perishing in great numbers by it, and presenting the same symptoms and complications as were noticed in its ravages amongst the whites. It was a disease before unknown to them; their traditions were silent as to any such disorder having prevailed amongst their forefathers or their descendants; and helpless, nerveless, and dying, they dragged their tottering limbs and wasted frames to the white man's camp, seeking in piteous accents for relief. They attributed it to the white man's presence; it was the "pale face" who brought it to the red man's wigwam. Their simple minds could but perceive that it sprang from contagion. Their herbarium contained for it no antidote; their medicine-man was its first helpless victim. In despair they broke up their camps, and thought to escape the pathway of pestilence by flying to the north away from the white man's track. Many perished in their flight; yet terror did not dissipate the Indian's regard for the dead, for the rude rites of sepulture, according to the forms of his tribe, were performed by the survivors over the dead, and often witnessed by the white wayfarer on his route to the Golden Hills of the modern Ophir.

The counties on either bank of the Missouri are the most fertile, populous, and improved of the agricultural portion of the State. Their topography presents the same general features, their surface being elevated, undulating, well-drained prairie, studded with detached sections of woodland, with a portion of bottom land skirting the borders of the numerous streams, which is, for the most part, well timbered. These bottoms are often limited at some little distance from the rivers by bluffs, or, by a moderate grade, the elevation of the adjacent upland is gained. On bluffs which overlook the rivers, there is generally a belt of timber, the naked prairie seldom running immediately to the river's brink. These belts are often several miles wide. Further off from the rivers, prairie land predominates; the timber is distributed in small patches or belts; an ocean of savannas almost as boundless as the horizon is often stretched out in one view, interspersed with limited topical displays

of woodland. In Dr. Drake's work on the *Diseases of the Interior Valley of North America*, the reader will find a description of the river districts of the State. The description given of the Missouri River is of special interest in connection with the diseases of 1851, as the author visited that section of the State in 1844, the year of the great flood. The next and last inundation since occurring took place in 1851.

Cases of cholera occurred in the spring of 1851, on the steamboats ascending the Missouri River from St. Louis, where the disease existed. It also prevailed among the California emigrants encamped before taking up their overland journey at Kansas, Council Bluffs, and their other points of departure, near the western boundary line of the State. The extent to which the disease then prevailed we have no means of knowing; but from what information could be obtained, we are warranted in believing that its prevalence amongst the emigrants was not so great as in the two previous years; and it did not now extend to the permanent population on the upper river. It will be remembered, that the disease commenced in St. Louis in April, when these emigrants were on their way by the city to the Missouri River; the cases which occurred in this itinerant crowd may, therefore, be attributed to exposure in St. Louis. Deaths by it occasionally occurred among the passengers on the Missouri River steamboats during the entire prevalence of the disease in St. Louis, but it was not until July that it created alarm by its inception among the resident population in the counties on its banks. An exception to this remark occurs in the counties of St. Charles and Warren, that are located at the mouth of the Mississippi on the north side of the river, and adjacent to St. Louis County. There the influence of the disease was first manifested early in the spring, reference to which will be found in the communication of Dr. Wright, of Warren, quoted in a subsequent page.

The disease prevailed in several localities in *Gasconade County*, 120 miles above the mouth of the Missouri, some account of which will be found in our extracts from Dr. Napee's communication in a subsequent page. In this, and in Montgomery County, on the opposite, north side of the Missouri, the disease was virulent, but confined chiefly to the inhabitants of the bottom lands. In Fredericksburg and the neighborhood, in Gasconade County, it prevailed to a considerable extent. The number of cases in this vicinity was said to be about twenty—of deaths eight; these occurred in the

early part of August. The disease was succeeded by an unusual amount of bilious and intermittent fever.

The disease broke out suddenly, in the middle of August, in Jefferson City, *Cole County*, on the south side of the Missouri. This place is the legislative capital of the State, and is located in a group of bluffs 137 miles up the river. "There is no interval land in front; but, on the opposite side of the river, there lies a hollow of the usual width, which is liable to partial inundation from ordinary floods. Directly west of the town, a creek, which has passed near it on the south, enters the Missouri. When the river is high, the back water ascends this little stream, and submerges its narrow bottoms. The country beyond this creek, and generally around the city on the south side of the Missouri, is elevated and rugged, the hills being composed of carboniferous limestone. It is subject to autumnal fever, chiefly intermittent, and even to the malignant or congestive variety. It is said to be as prevalent on the city bluffs, at an estimated height of 200 feet, as in the bottom opposite the town; and it is less prevalent on the margin of the bottom than back from the river. The population near the creek, west of the city, both in the valley and on the adjacent hills, are more liable to fever than those further east. The inhabitants three or four miles from the river are more exempt than those who reside on the bluffs." (Drake.) It contains a population numbering about 1500. The mortality from the disease from August 15 to 28, was 19; males 10, females 9. On the 2d of September, the disease had abated, and on the 12th of that month it had disappeared. The 24th, 25th, 26th, 27th, and 28th of August were the most fatal days, during this visit, of the disease, the deaths on them being 14. The disease prevailed in other parts of the country remote from the river.

In Glasgow, *Howard County*, about 220 miles above the mouth, the disease created a panic by an inception in the early part of July. The town was deserted by the inhabitants, who fled to the bluffs. The number of deaths by the disease, up to July 26, was 13; the number that occurred after, we are unable to state. By the end of the first week in August, the disease disappeared, having prevailed three weeks.

In New Franklin, *Howard County*, the disease prevailed towards the end of August and in the first portion of September. This place is situated on the north side of the Missouri, opposite Booneville. "The older village of Franklin, one of the earliest settlements on

the Missouri, has been arrested in its growth and depopulated by Booneville. The sandy and friable bottom on which it stands, or rather on which it stood, is not only liable to overflows, but to extensive caving in of the banks. In consequence of this, a village called New Franklin has arisen on the low bluffs in the rear." (Drake.) The vicinity of Franklin is low and unhealthy, and the most virulent location of the disease was on the lowlands adjacent to the river.

In *Lafayette County*, situated about 300 miles up the river, on its south side, the disease prevailed to a limited extent in the latter part of June, and first of July. In Lexington, an elevated locality, containing a population of 2700, a sudden outbreak of it occurred in the first week in July. The mortality up to July 23, when the visitation was at an end, was 13; white males 4, white females 3, negroes 6. The first cases were of parties who had recently arrived at the town from Kentucky.

In Kansas, *Jackson County*, 433 miles up the Missouri River, on its southern bank, between the mouth of its tributary the Kansas River, deaths by the disease occurred in the last week of July. From Dr. H. F. Hereford of Westport, in this county, we learn that there were about 160 deaths by the disease in Independence, Kansas, Westport, and their vicinity, about that period.

In St. Joseph's, *Buchanan County*, 537 miles up the Missouri, an unusual amount of sickness was reported to prevail in July and August. Within eight days, at the close of July, 13 deaths by cholera were reported. The population of the place is about 2600.

It will be remarked that, on the Missouri, the cholera was, in a great measure, confined to the towns on the river banks. Detached cases were, however, observed in the different sections lying off from the river, and in some instances straggling detachments of the disorder were distributed at the distance of 50 or 100 miles in the interior. In this straggling method of progression, we trace the disease to *Dallas County*, one of the central districts of the southwest section of the State, lying about 200 miles west of the Mississippi, about 160 miles southwest of St. Louis, and 60 miles from Jefferson City on the Missouri. Here it prevailed in Princeton and the neighborhood, during its existence in Jefferson, about the middle of July. It also prevailed, about the same time, "in patches," in the district lying between the Mississippi, the Missouri, and Dallas County, and in different portions of the south-western counties. The number of cases in the river towns was in no instance very

large, falling far below that of 1849, and generally below that of 1850; locations that had escaped it in the previous year were in this year visited by the disease. A remarkable exception to its visitations is evinced in the instance of Booneville. This locality, as we are informed, has never been visited by cholera, although the disease has prevailed in Franklin bottom on the opposite side of the river, and at different points above and below. Booneville is a bluff town on the south side of the river, 187 miles from the mouth. The bluffs, composed of carboniferous limestone, are less rugged and much less elevated than those of Jefferson City, being, according to Nicolet, only seventy-two feet above low water mark, and 602 above the Gulf of Mexico. The country around is dry and rolling, but, on the opposite side of the river, there is a bottom two miles wide. Autumnal fever is less prevalent there than at Jefferson City. The inhabitants near La Mine, the Saline, and other smaller streams which meander among the low hills around Booneville, are more subject to autumnal fever than those in the town and its vicinity. These streams have alluvial bottoms of moderate width, which are partially overflowed by every freshet, or have portions of their surface converted into temporary swamps by copious rains. Many of them, moreover, are rendered stagnant by mill-dams. In a confined locality of this kind, seven or eight miles from the river, Dr. Thomas had seen many malignant and fatal intermittents. In the valley of Petite Saline, which is a mile wide, flat, level, and watered by a stream converted by dams into a series of ponds, I found the fever decidedly and fatally prevalent." (Drake.)

In regard to the season of the year and the limitation as to time in which cholera prevailed on the Missouri River, and in the adjacent countries, it will be observed that it was not localized simultaneously at many points in this section until about the middle of July or later—a date just subsequent to the time when it attained its maximum prevalence in St. Louis, and had begun rapidly to disappear from the city. It prevailed on the upper section of the Missouri at a date previous to its outbreak in the lower sections. At the close of June, it was in Lexington and its neighborhood, in Lafayette County, three hundred and fifty miles up the river; towards the end of the month, it began at Glasgow in Howard County, two hundred and forty miles up; it located itself at Franklin, thirty miles lower down in the same county, towards the termination of August; it prevailed about the same period, namely, at the close of

July and in the first part of August, in St. Joseph's, Buchanan County, 430 miles up, and at the same period in Gasconade County, 100 miles from the mouth. It did not break out at Jefferson City, about 150 miles up the river, until the middle of August. Its period of prevalence in these localities was from two to four weeks.

Leaving the subject of cholera, we now take up other prevalent diseases of the year, in the counties of the Missouri.

Epidemic in St. Charles and Warren Counties.

Dr. Henry C. Wright, of Warren County, writes us that a very malignant form of disease prevailed as a limited epidemic in the spring and summer of this year, in St. Charles and Warren Counties. It partook of the nature of cholera, dysentery, and scorbutus, the symptoms being a mingling of those disorders. Its first inception occurred in the spring, in the vicinity of Flint Hill, St. Charles County. Here it simulated cholera in many of its symptoms, and was so called by some physicians. Its mortality was very great, nearly every case proving fatal. It took up its line of march thence, spreading like the army worm along a certain tract of country, leaving either side uninvaded. It occupied the high dry ridge land lying between the Missouri and Mississippi, crossing the Booneslick road at Pauldingville, and maintaining itself in this elevated district, usually entirely free from miasmatic influences. North of this locality, it extended to Indian Camp Creek, in Warren County, a less elevated district than that previously invaded. Its relative mortality here was less than in other sections. It began its march, as we have stated, in the spring, continuing its progress northward as summer advanced, and persisting, in some parts of the district described, until the cold weather of autumn. In the early part of its reign, it partook of the nature of cholera, there being profuse serous discharges by vomiting and purging, great tendency to collapse, rapid sinking, the patient dying in some instances within six hours, or, if surviving that period, finally succumbing under that condition of imperfect irritative reaction known as choleraic typhoid fever with hemorrhage from the bowels. As the warmer summer months set in, it partook of the nature of choleraic dysentery or malignant dysentery. There was now distinct rigor followed by febrile reaction, the skin being arid and burning, with intense thirst, great præcordial distress, nausea,

vomiting, profuse serous or sero-sanguinolent dejections from the bowels, in some cases muco-sanguine evacuations, and in a few subjects, in the advanced stagé of the disorder, some appearance of pus in the intestinal discharges. Hemorrhage, however, from the bowels was always in the ascendant in the last stage. Nervous lesions were early manifested, watchfulness succeeded by coma, muttering delirium, jactitation, subsultus, carphology, etc. etc. The circulation soon became irregular and much depressed, the pulse feeble and frequent, beating from 120 to 150, generally very soft—in a few instances, in the early stage of the disorder, tense and firm; the extremities cold, the abdomen and head hot; the tongue, early in the disease, was coated with a thin white fur in its centre; its edges were red, its tip pointed and upturned. In a day or two, the coating became thickened, pasty, and of a dark yellow or brown color, then peeling off, and presenting the organ dry, glazed, intensely red, and fissured, with the papillæ tumid. The mucous coat of the mouth, fauces, and pharynx offered the same changes as that of the tongue. Fuliginous sordes now accumulated, and oozing of blood from the gums and pharynx set in. In many cases, a scorbutic appearance of the parts within the mouth and throat was presented, the gums becoming distended, spongy, and separated from the teeth, with dusky redness of the fauces and pharynx, and profuse hemorrhage from these tissues. The surface became spotted with ecchymoses. The hemorrhagic tendency involved the tissues of the stomach and bowels, either hæmatemesis or melæna, or both, occurring with the hemorrhage from the mouth and throat. The hemorrhage was often very profuse and rapidly exhausting; in those cases where scorbutic symptoms were prominent, collapse rapidly supervened, the patient sinking with profound coma within a few hours. During the febrile stage, in the more protracted cases, distinct morning remissions and evening exacerbations were more or less noticeable. The abdomen was intolerant of pressure, but not more so in one than another of its regions; tormina and tenesmus were not so distressing as in inflammatory dysentery; dysuria was often present. The mortality by the disease was very great; every case in which nervous lesion became marked proved fatal, and these were a large proportion of all attacked. We regret we have nothing to offer of an accurate or satisfactory character relative to the statistics, causes, or nature of the disease.

Diseases of Gasconade County.

By Dr. Napee, of Hermann, we were favored with several communications, from which we condense the following:—

"Our observation of the diseases of this section of Missouri has often reminded us of the correctness of the axiom that an epidemic *æris constitutio* will, where it exists, affect materially the amount and the symptomatic manifestations of various diseases, most frequently impressing them with a malignancy uncommon to their ordinary display, and rendering them, for the time being, more intractable and fatal. The year 1851 offers an instance of the truth of these remarks; its diseases were parallel to those of the year 1844, with the exception only of the ocourrence of cholera in 1851. The two years are likewise similar in their meteorologic features, being marked by an unusual prevalence of heavy rains in the spring, and an excessive freshet in the Missouri and its tributaries, that drain the state. When this inundation subsided, cholera, dysentery, and climatic fevers appeared. Cholera prevailed in our country in a fatal form, frequently terminating in from five to eight hours. This was the case on Loutre Island, which had been submerged during the rise of the rivers, and in the valleys of Loutre Creek and the Gasconade; while on the higher lands, as, for example, in Hermann, it prevailed to but a limited extent. In those cases that were not fatal in the early stage, the disease ran into a fatal form of typhoid fever, and, in the more favorable cases, into intermittent fever. This tendency to intercurrence with periodic fever was strikingly marked in all of our diseases, and, in the instance of cholera, presented a manageable form of that disease, in which a diurnal tendency to reaction, followed by a morning remission, was apparent, that was amenable to the curative influence of quinine and iron.

"On the discontinuance of the wet season, and after the prevalence of a brief period of dry and hot weather, the cholera suddenly disappeared, its place being taken by dysentery, intermittent and remittent fevers, mostly of a malignant and fatal character. It was also observed that other diseases, not usually common at this period of the year, appeared in greater amount than usual; children at the age of dentition were liable to convulsions, and the female in gestation was more frequently exposed to abortion and to puerperal fever after labor. The greatest mortality after that by cholera was in the months of September and October. In this

we realize the truth of the observation that a wet spring or wet fore-summer is usually productive of disease and mortality in the autumn.

"Stomatitis prevailed in an unusual degree this year, as was the case in 1844. In most cases, it was accompanied by considerable swelling of the submaxillary and parotid glands; in some, by an erysipelatous affection of the face and neck. In a few instances, metastasis of inflammation to the testes occurred; in a small number, suppurative parotitis took place. This form of disease seemed contagious; when a member of a family was attacked, all who remained in contact with the first case were visited by the disease.

"It was singular to observe the tendency of acute disorders to run into cholera; nearly all of these were associated in their early stage with nausea, vomiting, profuse diarrhœa, vertigo, cold extremities, feeble pulse, &c., and in some cases with cramps.

"Acute cutaneous affections prevailed to a considerable extent in the summer, such as lichen, herpes, furuncle; influenza (catarrhus epidemicus) of a catarrho-rheumatic form predominated in March and April, presenting the usual symptoms. The disorder was slow in its progress, and generally pervaded the entire of a family. It visited all ages, being of a mild form in the young and middle-aged, but dangerous to the old and to those with a tendency to pectoral disease, as also to the inebriate. After the extreme heat and dryness, a mild form of catarrhal ophthalmia was observed prevailing, in some instances in all the members of a family, but readily yielding to moderate treatment. Blisters to the nape of the neck were demanded in a few instances, and the ointment of white precipitate of mercury was employed with success. Otitis, sometimes suppurative, and difficult audition were noticed in connection with the disorder.

"Intermittent fever is endemial in this as in all other sections of the State, but, in this year, it was unusually prevalent, obstinate, and much disposed to relapse. It was frequently complicated with inflammatory and nervous affections, the spleen and liver exhibited enlargement, and, in some subjects, pneumonia occurred requiring venesection. In the early period of the invasion of this form of fever, the quotidian and tertian types predominated; as the autumn advanced, these types gave way to the quartan, often of a malignant form. A remarkable difference was observed in the vernal and autumnal cases of this disease; the former were of an accelerated type, mostly the quotidian or tertian; the latter were of

the retarded type, mostly quartan. Jaundice with, as stated, hypertrophy of the liver and spleen, were the most common sequels of the disease."

From Dr. J. M. Burgess of Delphi, Gasconade County, we received communications. His statements concur with those of Dr. Napee.

Diseases of Boone County.

We take the following from the *Transactions of the Medical Association of the State of Missouri*, Vol. II. 1852: "A report on the topography of the County of Boone, with some of the symptoms and treatment of dysentery and erysipelas, as they have prevailed in the Missouri River bottom, both in their endemic and epidemic forms. By J. Wilcox, M. D.

"The county is situated near the central part of the State, having the whole length of its southern boundary (about 40 miles) bordering on the Missouri River, with three convenient stopping-points, each being easily accessible, and from which a large amount of produce is annually shipped.

"That portion of the county bordering on the river is alternately high and low, presenting bold bluffs, composed of limestone, and canopied with the quercus alba, or white oak, cornus florida, or dogwood, juniperus Virginiana, or red cedar, and red bud. The soil here is exceedingly productive, but, in consequence of the unevenness of the land, and its tendency to wash, is not cultivated until you recede some distance back from the river. The low lands, or river bottoms, vary in width, from a few hundred yards to some miles. The soil is rich and productive. Here may be found forest trees of more than a hundred feet in height, by some six or eight in diameter. Their large branches are extended outwardly, so as to form an umbrella, by which the surface is almost totally concealed from the rays of the sun. The vegetation is very luxuriant. Growing upon the edges of the marshes, and diffused over the low land, may be found the rumex aquaticus, or water-dock; eryngium aquaticum, or button snakeroot, or water erynge; ranunculus sceleratus, or crowsfoot; podophyllum, or may-apple; phytolacca, or polk; sambucus canadensis, or elder; solanum dulcamara, or bitter-sweet—forming a covering for the soil and portions of the marshes, by which means they retain their moisture, until, from a protracted drought, during the months of August and September, the vegetation commences decaying; the partly dried

marshes, with stagnant water and decaying vegetation, become fully exposed to the rays of the sun, by which means the autumnal miasmatic fevers are produced.

"These lands are liable to an annual inundation, in consequence of the lowness of the river banks.

"In the southwestern part of the county, only a few hundred yards back from the bottom, is a particular locality, famous from the fact of its inhabitants having been attacked with milk-sickness. Here the land is rolling or very hilly, containing many sink-holes, partly filled with water, and previously, several small ponds; but since the draining of the ponds, and destruction of much rank vegetation, by cultivation, the disease has entirely disappeared. The country extends some twenty-eight miles back from the river; the face of the country is generally rolling, and traversed by some ten or twelve small creeks, which find outlets in the Missouri River; a majority of them contain running water during the entire year.

"No minerals are found within the county, but their absence is fully compensated for by beautiful fields of corn, wheat, and tobacco, to the growth of which the soil is peculiarly adapted. In an educational point of view, the county is second to none in the State.

"The University of Missouri, and also the two female institutes, are located in Columbia, the seat of justice for the county. In the river bottoms, the attention of the traveller is often attracted by dilapidated log-cabins, of one story in height, without either door or window, the entrance to the one being closed by a sheet or blanket, and the opening for the other having never existed, but its place supplied by the numerous crevices between the logs, which are permitted to remain open during the most inclement weather. The foundations of these cabins consist of nothing more than the bottom logs, lying upon the ground, and which are frequently imbedded in the earth; the floors are roughly split slabs, laid upon the ground, or else elevated above it but a few inches. Here it was that epidemics made their appearance, in their most malignant and fatal character, sweeping off large numbers of the community, attacking alike old and young, male and female. Endemic diseases, also, in many instances, assumed a different form or appearance, and required a modified course of treatment to that ordinarily adopted on the hills. In addition to these causes of disease, which should constantly obtain the attention of the physician, another is worthy of consideration. I allude to the dietetic habits of the

people. They generally eat as for a wager against time, swallowing their food mashed, not masticated, and, of course, scantily supplied with saliva. Instead of applying this useful adjuvant in digestion to its proper and natural use, it is spit up with tobacco juice, and the food in the stomach must find its way to that viscus, floating in hot coffee. Add to this, the uniformity of dress worn by the people, (seldom changing for a change of temperature,) and the vicissitudes of the climate, and we have what might be thought sufficient causes for engendering and developing diseases of every type and grade, and such, indeed, is the case.

"Having mentioned a majority of the predisposing and exciting causes of disease, I shall notice two of the more prevalent and formidable affections which I have had an opportunity of observing.

"Dysentery has prevailed here, both as an epidemic and an endemic disease. As an endemic disease, it has presented nothing unusual, in point of symptoms or treatment, from that laid down by the best authorities of the day, unless it be its very frequent complication with intermittent and remittent fevers, and a want of tolerance in the system to bear up under the same depletory measures which would be found necessary in the high lands. In its epidemic form, it has proved (as in other portions of the western country) a formidable affection. In its mode of accession, it has differed from the common endemic disease: the premonitory symptoms being of longer duration; muscular debility more strongly marked; and the discharge differing, consisting first of liquid and mucus—then becoming consistent, again changing to liquid and mucus. They were at first of a deadly ash color, containing some mucus, and extremely offensive, having a considerable quantity of carbonic acid and sulphuretted hydrogen gases. Later in the attack, they resemble bloody water, or the washings of meat. The circulation also participates in the same prostrating influence; at first the pulse is full, but easily compressible; in a short time, it becomes extremely frequent and feeble. The skin, in some cases, is marked with vibices, and cold, clammy perspiration. The countenance wears an anxious expression; and, later, subsultus tendinum and delirium often set in. Not having had an opportunity of witnessing any *post-mortem* examinations, I am unable to state the anatomical changes that have occurred. The causes that produced these varieties seem to differ equally.

"Endemic cases could be explained by the individual having been subjected to exposure, such as wet feet, a sudden check to the

cutaneous exhalation, or, more commonly still, to errors in diet. But, in the epidemic variety, no such distinct causes were necessary, although errors in diet seemed to increase the tendency to the attack. In the treatment of this variety, I have found mercury and blood-letting, both general and local, of but little benefit, and, in many instances, prejudicial; but, in the earliest stage, before a complete establishment of the inflammation, with profuse mucous discharges, I have used creasote, and also oil of turpentine, with advantage. After the disease had become established in the system, I have found opium an invaluable remedy. Besides relieving the sufferings of the patient, and procuring sleep, which is much disturbed in this affection, it did good by diminishing the morbid sensibility of the bowels to the irritating matters they contained, and, by relieving spasmodic constriction, facilitated the action of purgatives. Ipecacuanha, used in combination with opium, I have found to be a useful adjuvant. A dose of ol. ricini, directed as a mild purgative (having found saline purgatives of but little benefit, and, in some cases, prejudicial); afterwards the use of strychnine, subnitrate of bismuth and opium, and also powdered charcoal, to relieve the fetor of the evacuations, with anodyne injections (of starch, laudanum, and acetate of lead) to relieve the distressing tenesmus which often tormented the patients; fomentations, cataplasms, and blisters to the abdomen, and, when necessary, the strength of the patient to be supported by stimulants and nutritive drinks, such as quinine, brandy, wine, carbonate of ammonia, and animal jellies, has been the treatment pursued by me with the most satisfactory results.

"Erysipelas has also prevailed, both as an endemic and an epidemic. In its endemic form the symptoms were mild, but well marked. The disease rapidly yielded to the use of bleeding, (when necessary,) mercurial cathartics, tartrate of antimony and potassa, and saline cathartics, with local applications of a mucilaginous character. As an epidemic, it prevailed here in the year 1847, in its most malignant form, attacking persons without regard to age or sex, locating itself upon the brain and spinal cord; it frequently ran its course in a few hours, but in a majority of cases lasted from one to five days, proving fatal in almost every instance, with scarcely a single exception. It made its appearance again in the spring of 1851, attacking most frequently the throat; but few cases of a malignant character occurred. Then, again, it made its appearance in 1852, but attacked a much smaller number of persons than for-

merly, and with but few cases presenting any symptoms of malignancy, although malignant erysipelas was prevailing across the river, not more than two miles south of this locality, and also twelve miles northwest of it, in Howard County. I have not been able to ascertain the course of treatment pursued here in 1847. During the spring of 1851, I found a varied course of treatment was required for different cases; in some, bleeding, antimonials, saline cathartics, and mercurials produced the desired effect; whilst, in others, hydrargyri pilula and pulv. rhei as a cathartic, Dover's powders as a diaphoretic, and quinine and brandy to support the system, were required. Since its appearance in 1852, I have used a treatment described by G. Hamilton Bell, of Edinburgh, who says that 'he has employed it for a quarter of a century, without failing in a single instance. In no instance, by its employment, has suppuration taken place, and the patient,' he states, 'is generally left in a more robust state of health than he was previously.'

"His mode of administering the remedy. 'Of course, the first object is to have the bowels freely acted upon; if the attack be mild, fifteen drops of the muriated tincture of iron are administered in water every two hours until the disease is completely removed. When the attack threatens to be more serious, the dose of the tincture is increased to twenty-five drops every two hours, and persevered in night and day, however high the fever and delirium.' In cases presenting both a sthenic and asthenic condition of the system, I have used it, adding, when there is much prostration, quinine and brandy. As a cathartic, I prefer blue pill and pulv. rhei, and as a local application, when it attacks the throat, a saturated solution of nitrate of silver. The results have been most gratifying."

Diseases of Chariton County.

From Dr. John H. Blue, of Brunswick, we received a communication on the topography and diseases of the part of the State known as the Grand River district, which, lying on the north side of the Missouri River, extends back towards the Iowa line, with the Chariton on the east, and Grand River on the west; it embraces a section of country some fifty miles square, north of 39° N. lat., and west of 93° long. W. of Greenwich. This is an extent of rich lands traversed by numerous slow tortuous streams, with level, alluvial intervals or bottoms on either side, and rich prairie or upland forming the greater and higher portion of the district. The

upland is undulating, without elevations rising to the dignity of hills. The woodland is distributed in belts skirting the water-courses. Limestone and sandstone frequently outcrop, and veins of bituminous coal occur. The low lands on the water-courses are liable to inundation in many seasons, and the entire region around abounds with shallow ponds of stagnant water. We may correctly infer from its topography that the prevalent diseases of the country are intermittent and remittent fevers and their sequelæ. In years when the earlier part of the season is comparatively dry, we often escape with little sickness. Rains prevail in May and June to an increased amount over other months of the year. The spring of 1851 was a season of unusual rain, the streams were very high, and the bottom lands were inundated, and, as a consequence, an unusual amount of endemial fever prevailed. The same was observed after the heavy rains and great freshet in 1844. We do not pretend to decide what is malaria, if such an agent exist; but we are satisfied that, in this section of country, the effects usually attributed to that cause are much aggravated by the imprudence of the new settler and the privations to which he is exposed. The emigrants crowd into ill-ventilated log-cabins, drink stagnant water, subsist on fat bacon and corn bread, without the due admixture of succulent vegetables or fruits, and expose themselves to the dews and miasmata with inadequate and unsuitable clothing, and are often under the necessity of laboring while under the operation of disease. The system, self-renovating as it may be to some extent, will bear up against miasmatic influence when it has the advantage of pure water, wholesome food, and prudent exposure to labor, and this result is observed when the settler completes his improvements, and has the opportunity of gathering round him the comforts and conveniences of a more advanced state of rural life; but as a stage of settlement in which many privations must be endured exists for every immigrant after his arrival in the new country, we need not be surprised at his greater liability to disease during the earlier period of his settlement than in the more advanced period.

The winter in the Grand River country is usually an open season; the snows are seldom deep, and lie but a short time. Rain, winds, and sleet make up the cold seasons. Inflammatory affections of the respiratory organs and synochus often prevail during the winter. This fever, however, presents the remittent type, and is treated often, perhaps too often, with quinine. Of late years, cerebro-me-

ningitis has frequently prevailed, and is a formidable and fatal affection.

During the year 1851, cholera did not prevail in the Grand River district, although it was fatal at many points above and below on the Missouri River. Bilious diarrhœa and dysentery pervaded some malarious neighborhoods. Dr. B. offers but few remarks on the treatment of the diseases of the country. The physicians, he observes, are generally well informed, and their views of practice correspond with those of accepted authorities. Charlatanism meets with little favor from the resident population, who are content to live or die scientifically. He states that a marked change has been noticed in the type of diseases of late years. It is not so active as was formerly observed, active treatment is less resorted to, a marked intolerance of depletive measures being now extant. Drastic cathartics are abjured; the predominating influence of irritability of the stomach and bowels forbidding their employment. The use of quinine and morphine is extending in both medical and domestic practice.

Diseases of Jackson County.

Dr. H. Ready, of Westport, Jackson County, sends us the following account of an epidemic visitation of erysipelas that prevailed in the winter of 1851–2 in his neighborhood. His communication details the cases which occurred up to the 19th of February, 1852.

The disease under consideration is known as epidemic erysipelatous fever, or by the common title "black tongue." My knowledge of its present visitation is not derived from personal observation of the cases, but from information given by Dr. Thomas Lea, who kindly furnished the major part of the facts herewith communicated. Dr. Lea is a resident of the immediate vicinity where the disease first appeared, and observed its progress from the commencement up to the present time.

The first case occurred in a young man who had just returned from California. We shall not attempt to give a detailed history of each case, but in as brief a manner as possible present an outline of the general symptoms of all the cases, their treatment, etc. There was no great similitude in the first that were presented; the first prominent and appreciable symptomatic lesion in some was an acute pain in the angle of the jaw, in others in the side of the neck; again, in others, the pain was located upon the mastoid pro-

cess of the temporal bone, or in the point of the shoulder. In some cases, this symptom was preceded by rigor; in others, it was followed by decided chill, and was succeeded by fever of greater or less intensity according to the gravity of the attack. There was malaise, pain in the head and neck extending down the back to the extremities, the eyes assumed a peculiar full, bright, and glistening appearance, the mouth and fauces were dry and of a dusky red color, the tongue became dry, red along the edges, and covered in the centre with a grayish coating. In the progress of the disease, the tongue became swollen, its margin livid, its central portion black; hence the common name of the disease.

Treatment.—In the first cases, the treatment adopted was palliative; but as the malady became better appreciated, a more active course was entertained. Bloodletting was now resorted to in almost every case wherein it was thought it could by any possibility be tolerated; in fact, Dr. Lea was disposed to run counter to most authorities on this point, and assert that the remedy would be beneficial even in cases where the pulse and state of the general symptoms might appear, at the time, to contra-indicate its employment. In this I differ from Dr. Lea, being disposed to be very careful how I trusted the lancet in any case, for fear of aggravating the disease and superinducing typhoid symptoms. In bleeding, I would be governed by the following circumstances. If called in early to a case, immediately after the symptoms indicating its first stage, and I find the subject to be robust and well nourished, and the fever high, I adopt the plan of Marshall Hall, placing the patient in the upright position, and bleeding, being careful to suspend the depletion on the first appearance of exhaustion. I am well aware of the great diversity of opinion existing among physicians as to the use of this remedy in the disease, some advocating it as beneficial, while others condemn it because of the irreparable injuries traceable to it in cases where it has been resorted to after the formation of phlegmonoid deposits, and the appearance of typhoid symptoms. Nevertheless, some have succeeded in the early stage of the disorder, in lessening the severity of the disease by it, subduing the fever, checking inflammatory action, and protecting the vital organs from the localization of the disease upon them. I am incredulous of its accomplishing so much in every case, and, as I have remarked, would be careful in resorting to it.

In the cases occurring in this county, the treatment first resorted to consisted of ipecacuanha combined with small proportions of

hydrargyrum cum cretâ, sufficient of the former being given to maintain nausea. Tartarized antimony was tried, but found to be less available than the ipecacuanha, owing to its tendency to induce gastro-enteritis, and, in some cases, extreme prostration. Diaphoretic infusions were likewise exhibited. Dr. Lea usually directed the addition of Dover's powder to the mild mercurial at bed time, to allay nervous excitability. These remedies, in the majority of cases, effected the best results. After the febrile symptoms were reduced, a stage supervened in which tonics were indicated. Dr. Lea used quinine freely, and with success. It seemed well adapted to sustain the vital powers and repair the lesions of organic life. Wherever there was much prostration, and a tendency to collapse, ammonia, camphor, opium, cinchona, wine and turpentine enemata, etc., were used. Blisters were productive of more injury than benefit. The bowels were kept soluble by saline laxatives and enemata. Gargles of solution of nitrate of silver, gr. iv. vel. v. of the salt to the ounce of distilled water were much used. As a topical application, Dr. Lea relied much on ferruginous poultices, the sulphate of iron being added to the ordinary cataplasms. He derived the greatest advantage from them. I placed more confidence in the application of the nitrate of silver, as more promptly arresting the local inflammation, than any other topical remedy. In the suppurative stage, or when the parts within the mouth and fauces ran into ulceration, the best application was the solid nitrate of silver, or a strong solution of the salt.

Number of cases treated to date,	20
" " deaths "	8
" " recoveries "	14
" " under treatment "	8

Diseases of Buchanan County.

Reported by Dr. A. Kerns, of Bayer's settlement.

This county is an elevated district of prairie, sufficiently undulating to drain the surface of rain as it falls into the small branches that flow into larger creeks which traverse it in every section. The larger watercourses have deep beds, slow currents, and high banks, with more or less bottom or meadow land on either side. These bottoms are liable to overflow during the high stage of water in the Missouri, and are limited by bluffs at variable distances from the streams. The drainage of the bottoms and of the higher prairie

land on the bluffs, is slowly effected, the dip of surface from the ridges to the water level of the streams declining at a gradual rate. The major part of the bottoms is, therefore, humid, and in some instances shallows of stagnant water form on them in rainy seasons. A portion of their surface is covered with timber, affording annually a rich *débris* of mast and foliage. The remaining part of their surface yields fertile crops when cultivated, especially of grass, which covers the earth from year to year, unless it is burned off in the autumn. The elevated prairie land is finely interspersed with forest growth, whose luxuriant foliage in the warm months affords a dense shade, beneath which is a thick undergrowth of stunted vegetation. This prairie is likewise very fertile. The hollows of the base of the undulations are moist. The general face of the country has been much improved within a few years, by its rapid settlement, and the drainage of the hollows referred to has been better effected as population and culture of the land increase. The so-called malarious diseases prevail to a greater or less extent over this entire district, the principal locations being the hollows or the bottoms which hem the watercourses. Their diminution is apparent with the progress of improvement, drainage, and tillage of the land. From Dr. Kern's observation, during a residence of ten years in the county, it is remarked that a wet season is necessary for the development of malarious diseases. The dry seasons are healthy.

Catarrhal ophthalmia began to prevail extensively in this district in May, and continued to a greater or less degree for the remaining portion of the year. The sanitary condition of the population had been good during the previous winter, and so continued, with the exception of this disease, until August, when miasmatic diseases set in, the ophthalmia now subsiding to some extent, but again increasing as the winter approaches. Ophthalmia had never prevailed so extensively in the district as in this year. The temperature of the month of April was lower than usual, and the weather was very variable, the month opening with extremely cold weather and the prevalence of snow and high north winds. To this unusual climatic state ophthalmia was attributed. Warmer and drier weather prevailed in May, until about the 10th day, when the rainy season set in and continued in an unusual degree until the middle of July. So completely was everything deluged, that farming operations, travel, and almost every other occupation, had to be suspended. In the short intervals between the rains, the sun shone with an un-

usual heat and brilliancy; evaporation was rapid, and the atmosphere was surcharged with humidity. The prevalent winds during this period were from the south and west, and, careering over the uninterrupted surface of prairie, often acquired great violence in their course. Fortunately, the decline of the rains was gradual, else a sudden cessation, with the great solar heat that prevailed as summer advanced, would have created an excessive amount of disease. The cause of the epidemic ophthalmia was supposed to be excessive atmospheric humidity, the prevalence of high winds, with the vivid sunlight and great solar heat. These, combined in an unusual degree, exerted, doubtless, a great influence on its origin, progress, and duration.

The general symptoms of the disease were, in a marked degree, different from those of ordinary catarrhal ophthalmia. It usually began with sense of itching or painful irritation, as of sand in the eye; profuse lachrymation then set in, with intense conjunctival injection, great heat and throbbing within the orbit, photophobia, and chemosis. The globe and lids of the eye would become extremely distended, their motions painful, and profuse muco-purulent secretion would set in. In some cases, the sclerotica became involved, attended with severe circumorbital pain, fever, &c. The constitutional irritation was comparatively slight, unless sclerotitis was superadded. The disease, after lasting from ten to fifteen days, and in some cases to a later period, turned into a suppurative form, the conjunctiva becoming thickened and granulated, and free secretion of a muco-purulent character being established. In this degree, the disorder persisted for a considerable time, subsiding very slowly, and leaving the affected tissues liable to the return of inflammation on exposure to slight causes of the disease. In many cases, great impairment of vision resulted, which was, however, much under the control of judicious treatment. In none was there blindness or permanent opacity of the transparent tissue of the eye.

Treatment.—In the majority of cases, the constitutional disturbance was so slight as to render it apparently a practical fallacy to order active constitutional measures for the relief of the local symptoms. Cooling, soothing, topical applications, with the free employment of cathartics, the saline being preferred, with scarification of the conjunctiva, acted admirably. The nitrate of silver in solution was efficient in some cases, in others it was of no avail. In cases where the constitutional disturbance seemed to demand it, active general treatment was resorted to. General and local bleed-

ing, purgation, antimony, &c., and the same local applications that were used in the milder cases, were used with variable results. What were the best local remedies would be difficult to decide, such as appeared to be efficient in some cases would be ineffectual in others; where, in one case, cooling and astringent collyria would seem to operate well, in another they would afford no relief. Tepid and emollient applications would be of service in some cases, and valueless in others. No uniform system was applicable to all cases; the remedies had to be varied, and it was no slight difficulty to determine on the best course.

Age, sex, or color produced no observable modification in the symptoms of the disease; all seemed to share it alike; occupation scarcely influenced it; it occurred among whites and blacks.

The most generally distributed epidemic of the year, was endemic intermittent fever. This endemic resulted from the extraordinary wet spring and summer, succeeded by hot and dry weather. Sporadic cases of this disease were observed in August, but its general distribution was not noticed until September, and it subsided in October. Though very general in its attacks, it was mild in its form, and easily managed. The only malignant cases that occurred were late in the autumn. As winter set in, many of the protracted cases assumed a new form, running into a fatal typhoid fever.

Diseases of Andrew County.

Andrew County is adjoining to Buchanan, both being situated on the east side of the Missouri River, the former furthest to the north. They form a portion of the district known as the Platte Purchase, a section added to the State, subsequently to its admission into the Union, lying between the old western boundary line and the Missouri, that on reaching the western boundary makes a detour from an east and west course, and runs from the northwest in a southwest direction. The counties of Atchison, Nodaway, Holt, Andrew, Buchanan, and Platte, were formed out of the Platte addition, being arranged from north to south along the east bank of the Missouri in the order in which we have placed them, Atchison, and Nodaway which joins Atchison on the east, being the most northerly, having the Iowa state line for their north boundary, and Platte being the one furthest south.

The prevailing diseases of Andrew County form the subject of a

communication from Dr. Wm. Burnett of Savannah, the county seat from which we make the following extracts.

The part of the county in which Dr. B. has practised for nine years, may, from its topography, be regarded as a healthy locality. The face of the country is undulating, the hollows are of limited extent, and, as a general remark, the surface is well drained. The water is good, indeed there appear but few causes, local or general, in this part of the State, favorable to the generation of much disease. The prevalent diseases are intermittent and remittent fevers, and an occasional visitation of influenza, dysentery, or variola has occurred.

Intermittent and remittent fevers are so intimately associated in their prevalence, and are so often intercurrent, that their differential diagnosis is not always a matter easy of solution. We shall speak of them collectively, for they scarcely require any distinction; their mode of invasion, their progress, their terminations, treatment, sequelæ, and causation being so very closely united. These fevers have prevailed most extensively in this portion of Missouri during the latter part of the summer, and in the autumn of 1843–4–5 and 6, and 1851, and although they are endemic to this section of country, and cases are seen at all seasons, yet at the periods named their epidemic influence was extensively felt. Their causation is referred to "Malaria," though, from our description of this portion of the State, the influence of miasmata would not be expected to operate to any great extent; yet we have observed that, in the latter part of the summer, and during the fall succeeding every wet spring, we have an unusual prevalence of intermittent and remittent fevers, even in localities remote from those in which marsh miasmata might be supposed to abound. Indeed, we regard no locality as being exempt, these diseases being common and fatal in the higher, and, to all appearances, the healthier portions of the country. We will here remark that our soil is rich, and the bottoms and uplands are covered with luxuriant vegetable growth, the decomposition of which, under the influence of the solar heat, must play an important part in engendering miasmata. The maximum temperature of summers during which these fevers prevail, is usually from 90° to 100° Fahrenheit.

We shall say nothing relative to the symptoms of these fevers, further than to allude to their diurnal types. Sometimes they are marked by regular paroxysms, assuming, in the same subject, at different times, the quotidian, tertian and quartan types; some-

times, and frequently, the double tertian prevails; at other times, we will observe the fever is ushered in without rigor, the paroxysm continuing from six to forty hours, then remitting, or partially intermitting, again returning, the paroxysm still irregular in some of its symptomatic details, until the disorder terminates, which may not be for a month or for a longer time.

Treatment.—The principial remedial agent in the treatment of those fevers is quinine, given in the interval of the paroxysms, or during their remission. When the paroxysms are intercurrent, the salt is given in large doses during the febrile stage. The mortality by these fevers is very small, scarcely one subject in five hundred that are attacked.

Catarrh, assuming an epidemic form, is not uncommon during our vernal season. It prevailed extensively in 1850, generally in a mild form. Occasionally it proved severe and obstinate, terminating in pneumonia. We ascribe it to sudden atmospheric changes and redundance of humidity.

Speaking of dysentery, as it prevailed in the summer and autumn of 1850 throughout Andrew County, particularly in Savannah, the county seat, and in the adjoining counties, Dr. B. refers to its treatment with quinine. "The remedies chiefly relied on," he remarks, "were calomel with opium, anodyne injections to relieve tenesmus, and quinine. I was induced by a friend, Dr. T. L. Young, to commence the quinine treatment earlier in the disease than my own judgment taught, and contrary to expectation, and, as I thought, also to reason, had cause to be pleased with its effects. Dr. Young, after giving one or two alterative doses of calomel, commenced with quinine and morphine as his principal remedies, and was very successful. Indeed, I know of but two deaths having occurred from the disease in the county."

Diseases of De Kalb County.

This county is in the northwestern part of the State, having Andrew and Buchanan counties on the west, between it and the Missouri River, and Clinton and Clay counties on the south, also between it and the Missouri. To understand this southern and western range of the Missouri with respect to De Kalb County, we may explain that this river first touches the corner of the State at the northern and western boundary lines, in latitude 40° 37′ north, longitude 95° 56′ west of Greenwich. It pursues a south-

western course, forming the western State boundary, until it reaches latitude 39 north, longitude 94° 40′ west, where it takes an easterly course, at first a little inclined to north, and traverses the southern portion of the northern half of the State until it enters the Mississippi, in latitude 38° 50′ 50″ north, and longitude 90° 13′ 45″ west. The western limit of De Kalb County is, at its southern point, about fifteen miles from the Missouri, and about thirty-three miles from it at the northern extremity. The southern limit of the county ranges about 30 to 40 miles from the curves of the Missouri.

Nine-tenths of the surface of this section of country is prairie land, the rest is moderately broken. The streams are usually small, and have extensive patches of bottom land contiguous to them. From Dr. John G. Miller, of Maysville, the county seat of De Kalb, we learn that *rubeola*, of a severe grade, commenced in the county in April, 1851, continuing during the spring and summer months, and closing with the commencement of autumn. The catarrhal symptoms were more than ordinarily severe, and stomatitis was a frequent complication. Diarrhœa invariably attended the declining stage, proving protracted and obstinate. The period of prodromus was well observed, and invariably limited to twelve days from the time of exposure. Dr. M. observed two cases in which the disease recurred in subjects who had been previously attacked.

Mucous diarrhœa was unusually prevalent in August. It yielded readily to mild mercurials, with opiates and astringents.

Periodic fevers generally prevail in this section from July to November. They are generally manageable, are regular in form, and controllable with the ordinary remedies.

* * * * * * * * *

We are unable to offer any details regarding the diseases prevalent in the counties on the Mississippi during this year, beyond what is contained in communications of Dr. L. Banks, of Marion County, extracts from which will be found on a succeeding page. From the newspapers of the day, we learn that the cholera prevailed in this section in the same manner, and almost at the same time that it existed on the Missouri, breaking out suddenly in some localities, prevailing for a brief period to a limited extent, and distributing itself in patches in the counties remote from the river. Its complications were in these districts the same as on the Missouri; its mortality was in almost the same ratio, and the summer and autumnal endemics were much increased in amount and fatality, by the same causes that operated on the Missouri. In short, the his-

tory of disease, presented in the foregoing pages, is descriptive of disease throughout the State. Our previous statements, in all details, apply to localities not described, as well as to those to which they have special reference, and which have been described. The medical topography of the entire district north of the Missouri varies but little from that of the counties composing the portions of it we have described; the local and general, the endemic and epidemic causes distributed over it, vary but little in the entire section, in comparing one part of it with another. The character of its diseases may, therefore, be left to inferences based on what we have already stated.

The southeastern section of Missouri is, for the most part, liable to the same diseases as the Missouri River of middle section. In the extreme southern counties, lying on or near the Mississippi, New Madrid, Pennscott, Dunklin, Butler and Stoddard Counties, a topography prevails very different from that in other parts of the State. This is the extensive swamp district between the Mississippi and St. Francois Rivers, situated at the head of the great St. Francois bottom, which is graphically described in Dr. Drake's work on the diseases of the interior valley of North America. The principal town in this "swamp district" is New Madrid, and, in speaking of it, Dr. Drake remarks that it has claims on the consideration of the medical etiologist, as standing in the focus of the only series of earthquakes which have agitated the interior valley of North America since its discovery. Beginning on the 16th of December, 1811, they continued for the next three years, during which time but few days passed in succession without repeated vibrations at this place and its neighborhood. "These vibrations produced in the town and the surrounding region some remarkable topographical and hydrographical changes; which, with the inquiry into the influence of the whole series of earthquakes, on the health of the people, may perhaps constitute the subject of a distinct section." We regret that we have received no communication from any physician in this interesting section of country, upon a topography so very rare and so very crusty and tremulous. The entire district is supposed by many to be a thin crust of earth, the foundation of which is an interlacement of trunks and boughs of trees, on which is superimposed an alluvial deposit of soil; this uncertain structure, it is further believed, rests or floats as it were, over a huge subterranean lake, the emanations from which are said at times closely to resemble in odor that of burning sulphur.

From the character of its formation, the district might be plausibly inferred to be intimately connected with that rare disease, popularly known as "the trembles;" it is certainly very liable to another more common form of diseased action, popularly known under the name of ague, or "shakes."

Diseases of Marion County.

From report of Dr. L. S. Banks of Houston. This county is in the northeast section of the State, on the Mississippi River, about one hundred miles above St. Louis.

Topography.—The surface of the higher lands or undulating prairies is of a dark porous loam, based on a substratum of clay, which, impermeable in a degree to water, retains the moisture in the loamy upper crust, especially in wet seasons. The bottom lands, skirting the streams, are of rich alluvion, level and marshy, densely timbered in many places, or covered with rank coarse grass. The upward percolation of moisture through the crust forming the surface of the ridge lands and prairies, and the marshy character of the bottoms, give rise to exhalations that are most rife in the months of July, August, and September. Inhabitants of these bottoms, and those residing at the heads of the ravines that issue from them, are more liable to summer and autumnal diseases than the population on the ridges and prairies; indeed the head of a ravine even three or four miles removed from a marshy locality is more unhealthy than the immediate neighborhood of the marsh.

The spring and earlier part of the summer, in this and nearly all other localities in the State, were remarkable for heavy and repeated rains. For a few succeeding summer weeks, occasional lighter deposits of rain occurred, with comparatively a moderate temperature for summer; about the middle of August, hot and dry weather set in, which prevailed until the middle of September, and about this time a visitation of *purulent ophthalmia* began, that pervaded all classes and ages. From inquiry, we learn that the disease extended some distance into the interior, travelling in a westerly direction. It lasted in the vicinity of Houston almost six weeks, and was attributed to the intensely hot weather and solar light, aided by the presence of sand uplifted by the winds. Some circumstances observed in connection with the disease would seem to show its propagation by contagion, as, for example, where a number of healthy children from a distance would visit, for several hours,

families in which the disease existed, they would, in from eight to ten days, become attacked with the ophthalmia, and present the same stages of disorder as those previously attacked whom they had visited. From remarks in Dr. Banks's communication, we infer that the disease yielded to moderate antiphlogistic measures. In the severer cases the nitrate of silver, topically applied, was necessary for cure.

Cholera did not prevail in the vicinity of Houston, which is in the northern part of the county about twelve miles west of the Mississippi, although a predisposition to it was manifest from the unusual tendency observed to diarrhœa. With September, the grave forms of intestinal disease began, assuming the usual symptoms of dysentery, or dysenteric diarrhœa. The cases varied from the simplest form of febrile diarrhœa to the extremest character of dysentery attended with high febrile excitement. In some cases, the disease was associated with remittent fever, in others with intermittent. The local symptoms were often intense, the tormina and tenesmus being very distressing, and the dejections frequent. The fatal cases terminated about the ninth or tenth day. In menstruating females, morbid uterine engorgement would almost invariably occur, adding to the sufferings and dangers of the case. In these cases, dysuria and sometimes mucous cystitis, were observed.

The ordinary endemial autumnal fevers did not rage to any great extent until after the drought set in, in August. With the cooler weather in autumn their invasion decreased. Unless complicated with enteric lesions, their control was easily effected.

Influenza prevailed very generally towards the last of December, scarcely any one escaping it. It presented the usual symptoms, and was palliated, not interrupted, by any mode of treatment.

Diseases of St. Genevieve County.

This county is located on the west bank of the Mississippi, about 50 miles below St. Louis. It is the outlet to the river from the extensive mining region which adjoins the western boundary. The general surface is rather broken than undulating, presenting a succession of ravines alternating with ridges, traversed by numerous small streams. On the borders of these watercourses are limited patches of bottom land. The soil on the upland is thin and sterile, and well covered with timber, the chief of which is oak; in the

counties immediately west, immense woods of pine are stretched out, which continue far into the southwest section of the State.

About the 12th of July a sudden outbreak of cholera occurred, immediately north of the town of St. Genevieve, on the bank of the Mississippi. The number attacked within four days was eighteen, 4 whites and 14 blacks. Of these, 4 died. The visitation was confined to one locality that was isolated from the town, and adjacent to the mouth of a ravine that runs between two hills. Two cases only occurred in the town itself, and those at a period several weeks later than the above cases. With the exception of the locality being near the ravine no local causes could be discovered which would account for the disease. The exciting cause of the attacks was indulgence in excess of fruits. The cases were all well-marked *Asiatic cholera.* An unnatural prevalence of intermittent fever was noticed throughout the country in the month of August, and during the autumn.

REPORT ON THE YEAR 1852.

Diseases of St. Louis.

The same diseases prevailed this year in St. Louis, as in the year preceding, with some variation, however, as to their distribution in the various seasons, and the entire mortality for the year falls below that of 1851. Exanthematous fevers were added to the catalogue of epidemics in this year.

The amount of disease in the first quarter was greater than in the corresponding quarter of the last year; acute affections of the respiratory apparatus being increased, as well as affections of the gastro-intestinal mucous tissues. The number of deaths by acute phlegmasia of the air-passages was 121, against 57 in the same season in 1851. Consumption caused 58 deaths, against 49 in the same quarter in 1851. Cholera, diarrhœa, and dysentery were the causes of 58 deaths, against 38 in the same period in 1851. Acute affections of the brain occasioned 85 deaths, against 77 the preceding year in the same period. Scarlatina and measles were more prevalent than usual in this quarter of the year, their united mortality being 30, against 6, the mortality of this season in 1851. Typhus and typhoid fevers prevailed to about the same degree as in 1851. The aggregate mortality for the quarter is 714, against 507 for the

same period in 1851, an increase of 40 per cent. in the quarter of this year.

MEASLES.—The first epidemic to be noticed in this year is measles, which prevailed to a considerable extent during the first half of the year. Its advent may be dated in the final quarter of 1851, a large number of cases having occurred in November and December. The number increased in January and February, 1852; a further increase was noticed in March, and a much greater cessation in April and May. Its prevalence, in these last months, was very general, few subjects liable to the disease escaping it. As in all similar epidemics, the character of the attacks varied. In some subjects it was mild, in others grave. Some of the severest cases that we witnessed occurred in November, 1851, at the outset of the epidemic; the nervous lesions in these, during the eruptive stage, being very intense, the diarrhœa, at the decline of the eruption, profuse and intractable, yet the implication of the respiratory organs was not deep, death, in the fatal cases, resulting from the intensity of the nervous lesions, or from the exhaustion of the diarrhœa. From what we learned from others, however, acute pneumonia and bronchitis were present in some cases in the early period of the epidemic; pleurisy was then more rarely a complication. The cases presented later in the winter, when dangerous, became so from implication of the pulmonary apparatus, and, when fatal, usually terminated from the fifth to the ninth day. As the variable months of March and April set in, the same complication of disease of the pulmonary organs existed, but, so far as we noticed, the tendency to fatal results was now in a more advanced stage of pulmonary disorganization, the subjects perishing from the ninth to the fourteenth days, or later. We lost cases of this kind by laryngitis with irritative or hectic fever persisting to the fatal result on the eighteenth or twenty-fourth day of disease. In these instances, convulsions immediately preceded the fatal result, the disease was, in many subjects, the source of chronic bronchitis, and of tuberculosis of the lungs, by which death was, sooner or later, induced.

The fatality of the disease was relatively least in the last months of 1851; this was increased in the first quarter of 1852; the most fatal period of the epidemic was in April and May. The maxima of the disease, as to prevalence and mortality, were in these last months. In June its prevalence diminished; in July, the decline was more marked, and in August, it disappeared wholly from the city.

We have nothing of interest to present as to the peculiarities observed of this epidemic, if any such were notable, nor yet anything worthy of remark as to the treatment of the disease. The only statistics that we were able to obtain are the mortuary, which are found below.

SCARLATINA, ANGINA, ETC.—During the epidemic of measles, an unusual prevalence was observed of scarlet fever, and its ordinary accompaniments, angina and stomatitis. The operation of the poisons of measles and scarlet fever at the same time, viewed relatively to their interfusion, will be the subject of remark in a succeeding portion of this report.

PERTUSSIS likewise prevailed to a limited extent during the invasion of measles, the latter disease being often noticed to be the predisposing cause of the former.

CYNANCHE PAROTIDEA was also prevalent during the reign of measles and pertussis, the three diseases supervening in a few instances in rapid succession in the same subject. In a few cases coming under our notice, pertussis occurred after measles, and, during the latter, mumps supervened—the cases then becoming formidable by reason of the increased liability to convulsions; the tendency to metastasis or extension of the inflammation, first located in the parotids, to the membranes of the brain being very marked. The following tables exhibit the mortality by the diseases of which we have been speaking.

Tabular Statement of the weekly Mortality from Measles, Scarlet Fever, Hooping-cough, and Angina, during the first half of 1852.

Week ending	Measles.	Scarlet fever.	Hooping cough.	Angina.	Week ending	Measles.	Scarlet fever.	Hooping cough.	Angina.
Jan. 4	...	1	2	1	April 11	6	2	2	1
" 11	1	...	...	...	" 18	9	...	...	...
" 18	...	...	...	1	" 25	11	...	3	1
" 25	2	...	...	...	May 2	13	5	1	2
Feb. 1	1	...	...	...	" 9	13	...	1	2
" 8	2	1	...	1	" 16	7	...	...	...
" 15	...	...	...	...	" 23	6	...	...	...
" 22	2	4	...	2	" 30	12	...	...	...
" 29	2	2	...	...	June 6	6	1	...	...
March 7	2	1	...	...	" 13	4	1	1	...
" 14	3	3	...	1	" 20	2	2	4	...
" 21	4	2	...	1	" 27	1	...	1	...
" 28	4	1	...	...					
April 4	6	3	...	1	Total ½ yr.	119	29	15	14

Tabular Statement of the Age and Sex of Subjects dying of Measles in St. Louis, 1852.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 1 year	1	1	1	..	1	..	2	3	5	4	2	1	..	1	..	..	..	..	..	..	..	..	..	..	12	10	22
1 to 2 y'rs	..	1	2	..	4	2	11	7	3	2	1	2	1	2	..	2	..	..	..	..	..	..	..	..	22	18	40
2 " 3 "	..	..	1	..	3	..	5	1	4	8	..	5	..	..	..	..	..	..	..	..	..	..	..	..	13	14	27
3 " 4 "	..	1	1	..	..	..	1	2	3	2	..	..	..	2	1	..	..	..	..	..	..	..	..	1	6	8	14
4 " 5 "	..	..	1	..	1	..	..	2	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	3	7
5 " 6 "	..	..	..	..	..	..	1	3	2	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	5	3	8
6 " 7 "	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	3
7 " 8 "	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
8 " 10 "	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	2
10 " 12 "	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12 " 20 "	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1
Over 20 "	..	..	..	..	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	2	3
Age unk'wn	..	..	..	..	..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	4
Total	1	3	6	..	9	4	22	23	22	17	4	9	2	5	1	4	..	..	..	..	..	..	..	1	69	64	133

Per cent.

Ratio of above in subjects of 5 years and under, to population of same age, 0.72
" " " 5 to 10 years of age, " " 0.14

Tabular Statement of the Age and Sex of Subjects dying by Scarlet Fever in St. Louis, 1852.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 1 year	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	3	1	4
1 to 2 yr's	..	..	2	..	..	1	..	2	..	..	..	2	..	..	..	2	..	1	..	..	..	2	1	3	3	13	16
2 " 3 "	1	..	..	..	1	1	1	..	..	..	..	2	..	..	1	..	..	..	..	..	1	..	1	1	6	4	10
3 " 4 "	..	..	..	..	..	1	..	1	..	..	..	..	..	1	1	..	..	1	..	..	..	..	1	1	2	5	7
4 " 5 "	..	..	..	..	..	1	..	1	..	..	..	..	1	1	..	..	..	1	..	..	..	1	2	..	3	5	8
5 " 6 "	..	..	2	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	3	1	6	2	8
6 " 7 "	..	..	..	..	..	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	4	6
7 " 8 "	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	4	2	5	7
8 " 10 "	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	2
10 " 12 "	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1
12 " 20 "	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	2	1	3
Total	1	..	6	1	2	6	3	7	..	.	..	4	1	2	3	3	..	3	2	..	3	4	10	11	30	42	72

Per cent.

Ratio in above of deaths of subjects under 5 years to population of same age, 0.3
" " " 5 to 10 years of age " " 0.2

CHOLERA.—Passing from the subject of eruptive fevers, we notice, next in succession, the intestinal diseases, taking them up in the order observed when speaking of them in the preceding year. The most prominent of these is cholera.

This disease was not so generally distributed in the city, nor was the number attacked by it as great as in 1851. It was principally confined to the lower levels of town, mostly, as to residents, amongst the German population in the south section. It was also

prevalent to a more limited extent in the north section, and in the neighborhood of Eighth, Ninth, Tenth, and Eleventh Streets, from Franklin Avenue to Mullanphy Streets, a district much of which has been recovered from a former pond that is now filled in. It was much confined to newly arrived immigrants, and to the poorer resident population, which are densely crowded in small badly ventilated tenements in narrow courts and alleys. Occasional cases of the disease were reported in the first four months of the year; an increase of it began in May; a greater increase took place the first week in June, with a reduction in the two succeeding weeks. The last week of the month manifested an alarming increase of it, which was exceeded slightly in the succeeding first week of July, at which time the disease attained its maximum prevalence in this year. A slight reduction of it was manifest in the next two weeks, a marked diminution occurring towards the end of the month, where it maintained a uniform yet reduced rate until the middle of August, and then rapidly declined, and may be said to have disappeared as an epidemic at the end of the month. It will, however, be noticed that the weekly mortuary reports show that cases of the disease prevailed in the city during the remaining months of the year; these occurred principally among emigrants then arriving in the city. The weekly mortality by cholera during the last four months of the year is exceedingly variable; in some weeks it doubles itself on the mortality of the week preceding, and the aggregate mortality of the disease during this period much exceeds that in the corresponding period of the preceding year—a fact worthy of remark, as failing to indicate in this, as it did in other years, that the disease would renew its ravages in the succeeding spring.

Compared with the preceding year, cholera in 1852 was somewhat differently distributed as to the seasons in which it prevailed, its diffusion this year extending over a greater period of time; its intensity not being concentrated upon a few weeks in midsummer, as in other years. This will be evident to the reader, if he compare the weekly mortality by cholera in this and other years. The prominent facts in the visitation of this year are the more limited diffusion of the disease throughout the city, the smaller number of localities attacked, its prevalence in every month of the year, and its very diminished prevalence amongst the resident citizen population. Some of these facts hold good as to other years of its visitation, but as to no one year more notably than this. The following

table will, in part, illustrate what is above advanced; the reader may make more minute comparisons of the disease from the tables given in different parts of the report.

Table showing the Monthly Mortality by Cholera in 1851–1852.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1851 . . .	2	...	1	9	49	505	233	37	9	...	2	...	847
1852 . . .	3	3	1	2	35	204	304	87	35	63	28	24	789

To the enumeration of the mortality of 1852, 13 must be added, the age and sex of which are not ascertained, making the aggregate of the year 802. This addition will not materially vary the result we point out.

On examination of the foregoing table, it will be perceived that the disease was nearly uniform in its rate of prevalence in both years up to the end of May; subsequently the years vary in their mortuary results. In June, 1851, the mortality by cholera was suddenly and greatly increased, running up from 49 in May to 505 in June, an increase in one month of 456. In the succeeding month, the mortality declined to 233, in August to 37, and but eleven deaths were reported by it during the final four months of the year. In June, 1852, the total of deaths from cholera is 204, an increase over May of 169; in July, the total is 304, an increase over June of 100. The disease, in this year, therefore prevailed, when at its intensity, in a reduced degree compared with 1851, but the remaining period of this year, it continued in excess over 1851. These comparative variations are in part accounted for by the relative influx of immigrants in the two years; the immigration in 1852 largely exceeded that of 1851, particularly in the last six of its twelve months. (See Appendix for Statistics of Immigration.)

It is on the immigrant population recently landed, that the disease has, in every year of its occurrence in St. Louis, expended its violence. The causes of this may be summed up in a few words. This population, previous to its arrival in the city, has for months lived in an atmosphere of "crowd poison;" it passes through the tropical heats of the southern Mississippi in the months of May, June, July, August and September, on its way to the city; it indulges to excess in a diet to which it has been unaccustomed, namely, the succulent fibrous vegetables and scarcely ripened fruits procured on the river in the voyage from New Orleans, and the river water induces diarrhœa in all who for the first time drink it.

The meteorological circumstances to which this population is exposed on arrival would account for an undue prevalence of intestinal disease among its numbers; add to these the effects of change of habits, and we need scarcely wonder that but a brief period elapses after it is landed on our shores, before it is more than decimated by the scythe of death. It is this population that contributes most largely to the hospital wards and burial fields of our city in every year, and, during cholera years especially, it has contributed the largest portion of those dying of that pest and its cognate diseases. An idea of the destitution of this class of population, and of its liability to disease, may be gathered from the record of admission to the City Hospital alone in the one year from July 1, 1851, to June 30, 1852, which shows of 1774 admissions, 945 were natives of Ireland, 418 of Germany, 117 of England and Scotland, 106 of other foreign countries, and 188 were of the United States. A very large majority of these had been in the city but a brief period, ranging from a few hours to a few months. The English admissions were principally newly-arrived Mormon immigrants, who left their country with the view of going to the Salt Lake settlements in Utah. Of 3,719 interments reported by Dr. McMurray, the health officer, as taking place between July 1, 1851, and June 30, 1852, in the cemeteries of St. Louis, over one thousand, he states, were buried at public expense, the greatest portion being recently landed immigrants.

Table showing the Age and Sex of Subjects dying by Cholera in St. Louis, 1852.

	Jan.		Feb.		Mar.		Ap'l.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
2 yrs. and under	..	..	..	..	..	..	..	..	..	..	11	4	16	15	5	3	..	..	1	2	1	1	2	4	65
2 to 5 years	..	..	..	..	..	..	..	..	1	1	8	5	9	7	8	7	..	1	3	4	3	1	1	..	54
5 " 10 "	..	..	1	..	..	..	..	..	1	..	6	4	19	12	9	3	1	..	2	3	1	..	4	..	66
10 " 15 "	..	..	..	..	..	..	..	..	1	..	4	4	7	5	3	2	..	1	..	1	1	..	2	..	31
15 " 20 "	..	..	1	..	..	..	..	..	2	..	9	2	4	11	3	..	1	2	1	1	1	1	1	..	40
20 " 30 "	2	..	..	..	..	..	1	..	7	7	33	15	49	25	10	5	5	2	17	3	6	4	2	4	200
30 " 40 "	..	..	..	..	..	..	1	..	8	2	27	20	31	28	7	7	10	1	11	1	4	1	..	2	161
40 " 50 "	1	..	1	..	1	..	..	..	2	1	20	12	26	11	7	4	3	1	2	4	1	2	1	1	101
50 " 60 "	..	..	..	..	..	..	..	..	..	1	6	5	12	6	3	4	1	..	2	2	..	..	..	..	42
60 and over	..	..	..	..	..	..	..	..	1	..	4	5	4	7	1	1	2	1	2	1	..	..	..	..	29
	3	..	3	..	1	..	2	..	23	12	128	76	177	127	51	36	26	9	41	22	18	10	13	11	789
																	Age and sex not stated								13
																								Total	802

Mortality.—The total mortality by cholera in 1852 in St. Louis, is, by our compilation of the official returns, 802, a ratio of 16.34 per cent. of the aggregate annual mortality, and of 0.73 per cent.

of the entire population. Of this number, the age and sex of 789 are given—486 being males and 303 females. The ratio of deaths to ages of the population is as follows:—

						Per cent.
Ratio of deaths of subjects under 5 years to population of same age						0.78
"	"	from 5 to 10 years	"	"		0.56
"	"	" 10 to 15	"	"	"	0.83
"	"	" 15 to 20	"	"	"	0.41
"	"	" 20 to 60	"	"	"	0.80
"	"	60 years and over		"	"	1.9

Assuming the mortality of subjects between 40 and 50 years to have been equally divided between those of 40 and 45 and those of 45 to 50 years, we have the following estimate:—

						Per cent.
Ratio of deaths of subjects from 20 to 45 years to population of same age						0.78
"	"	45 to 60	"	"	"	1.56

In order to prevent the decimal proportions in our analysis, we take the following:—

						Per cent.
Ratio of subjects from birth to 10 years of age to population of same age						0.69
"	"	10 to 20	"	"	"	0.87

The above would show that resistance to the fatal effects of cholera is greatest at from 10 to 20 years of age; it is then greatest in subjects under 10 years, and the resistance in subjects under 5 years, and in those from 20 to 45 years is nearly the same, while in subjects of 45 and over the dangers of cholera are greatly increased.

DIARRHŒA.—Diarrhœa prevailed to a greater degree in the first quarter of this year than is usually observed at that season. In the succeeding quarter, however, the disease was rather diminished when compared with its prevalence at the same period in the preceding year, and this comparative reduction was maintained during the summer quarter. In the last quarter of the year, the disease maintained about the same rate of prevalence as in the same quarter of 1851, except in the month of October. The mean range of the disease for the entire year, was below that of 1851. The period of greatest prevalence in this year was in June, July and August, July being the maximum month; in October, an unusually large number of cases occurred, and the monthly mortality of the disease exceeds that of any other month of the year, except July.

The remarks made on the disease as it occurred in 1851 apply to this year, its etiologic circumstances in both years being the same.

The autumnal mortality by diarrhœa in this year is especially referred in the official reports to the chronic form of the disease.

Mortality.—This is exhibited in the following

Table of the Monthly Mortality by Diarrhœa in St. Louis, in 1852, *showing the Age and Sex.*

Ages.	Jan.		Feb.		Mar.		Ap'l.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Total.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1 year and under	2	..	2	..	..	..	..	..	..	..	2	6	4	9	3	2	1	2	1	1	1	..	1	1	17	21
1 to 2 years	1	..	1	..	..	..	1	..	1	..	3	3	5	6	3	5	1	..	1	3	..	1	1	1	18	19
2 " 3 "	..	..	1	2	..	..	..	..	1	..	1	1	2	1	2	3	..	..	..	1	1	..	..	..	8	8
3 " 5 "	..	..	..	..	..	..	..	1	..	..	..	1	2	2	..	..	2	..	..	..	..	..	1	..	5	4
5 " 10 "	..	1	1	..	..	..	..	.	..	1	1	..	2	..	..	..	..	..	..	2	..	..	..	..	4	4
10 " 20 "	1	..	..	1	..	..	2	..	..	1	..	..	2	..	..	..	..	..	4	..	1	1	..	..	10	3
20 " 30 "	4	..	3	..	1	..	2	..	..	1	..	1	4	2	2	2	6	..	11	2	7	3	2	1	42	12
30 " 40 "	1	..	1	..	1	..	1	..	1	1	1	1	2	..	1	1	1	..	3	1	5	..	4	..	22	4
40 " 50 "	..	..	..	..	2	1	..	..	..	.	2	..	1	..	1	1	2	..	5	2	4	..	..	..	17	4
50 and over	1	1	..	..	1	..	2	1	..	..	2	..	..	..	1	..	3	1	6	1	1	1	2	1	19	6
Age unknown	..	..	..	..	..	..	1	..	1	..	1	..	2	1	2	1	..	1	..	..	..	1	..	1	7	5
Total	10	2	9	3	5	1	9	2	4	4	13	13	26	21	15	15	16	4	31	13	20	7	11	5	169	90

Analysis of the Mortality by Diarrhœa.—The mortality above presented, a total of 259, is 5.28 per cent. of the aggregate mortality of the year. The following is the relationship of this mortality to the ages of the population.

	Per cent.
Ratio of deaths of subjects under 5 years to population of same age	0.65
" " from 5 to 10 years " "	0.06
" " " 10 to 20 " " "	0.07
" " " 20 and over " "	0.19

Assuming, as we have done in our other tables, the mortality from 40 to 50 years to be equally distributed between the 40 and 45 years and the 45 and 50 years, we have the following result:—

	Per cent.
Ratio of deaths of subjects from 20 to 45 years to population same age	0.16
" " of 45 years and over " "	0.47

The liability to death from this disease is therefore, in this year, greatest at the extremes of life.

Dysentery.—Dysentery prevailed in this year in a reduced degree and with less fatality than in 1851. In the first four months of the year, a greater number of cases was observed than in the corresponding period of the preceding year, but the month of May, 1852, was marked by scarcely any occurrence whatever of the disease. In June and July, there was comparatively less of it than had been observed the preceding summers, and scarcely more than is usual in years when cholera is not prevalent. The maxi-

mum of the disease was in July; in August its range fell below that of August, 1851; the remaining months of the year it prevailed at a reduced rate compared with the year before. Its general character and complications were similar to those observed in the preceding year.

Mortality.—This is given in the following

Table of the Monthly Mortality by Dysentery in St. Louis, in 1852, *showing the Age and Sex.*

Ages.	Jan.		Feb.		Mar.		Ap'l.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Total.		Aggregate both sexes.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 1 year	..	..	..	..	..	..	..	..	..	..	3	1	4	4	1	..	2	..	1	2	1	1	2	1	14	9	23
1 to 2 yrs.	..	..	1	..	..	..	2	..	1	..	3	..	8	5	7	4	4	1	2	2	2	3	..	..	30	15	45
2 " 3 "	..	..	..	..	..	..	1	1	..	..	1	..	2	2	..	..	..	..	3	2	1	1	..	..	8	6	14
3 " 5 "	..	..	..	..	1	..	..	..	..	..	..	..	1	2	..	..	1	1	..	..	1	..	..	..	4	3	7
5 " 10 "	..	..	..	..	..	..	..	..	..	..	..	1	..	2	1	..	1	2	..	..	2	..	1	..	5	5	10
10 " 20 "	1	..	1	1	..	..	1	1	..	..	..	2	..	1	3	..	1	..	1	2	..	1	1	..	9	8	17
20 " 30 "	1	..	..	1	1	..	1	..	..	..	2	1	1	2	5	4	3	2	4	3	4	2	..	..	22	15	37
30 " 40 "	..	1	..	..	..	..	..	..	..	..	1	1	1	2	4	1	1	2	3	3	1	1	1	1	12	12	24
40 " 50 "	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	2	..	..	2	1	1	2	2	8	5	13
50 and over	..	..	..	..	..	..	..	..	..	..	..	..	3	..	4	1	5	1	1	1	..	1	..	1	13	5	18
Adults age unknown	..	..	..	1	1	..	..	..	..	1	..	1	1	1	2	..	1	1	..	..	..	1	..	..	5	6	11
Total	2	1	2	3	3	..	5	2	1	1	10	7	21	21	29	10	21	10	15	17	13	12	7	5	130	89	219

Analysis of the Mortality by Dysentery.—The total mortality as above, 219, is the ratio of 4.46 per cent. of the aggregate mortality of the year, or a ratio of nearly 0.20 per cent. of the entire population. Pursuing the topic, we find the

	Per cent.
Ratio of deaths of subjects 5 years and under to population of same age	0.58
" " from 5 to 10 years " "	0.08
" " " 10 to 20 " " "	0.08
" " 20 years and over " "	0.15

Assuming the mortality at 40 to 50 years to have been divided equally between 40 and 45 and 45 and 50 years, we have:—

	Per cent.
Ratio of deaths of subjects of 20 to 45 years to population of same age	0.12
" " 45 years and over " "	0.32

The ratio of mortality is greatest at the extremes of life. The most fatal time of life for this disease is between the first and second years, or at the period of first dentition. It is the ordinary experience of physicians in our section that dysentery is one of the least fatal acute diseases that the adult encounters; in infancy, however, it is intractable and dangerous, proving fatal by superinducing meningitis. In strumous infant subjects, it is almost certainly fatal, destroying most frequently, in its acute stage, by the supervention

named; later in its attacks, its fatal result is due to tuberculosis of the mesentery. The supervention of meningitis in the dysenteries of children is almost invariably attended with reduction of the enteritic lesions, the inflammatory process seemingly being metastatic. This frequent transfer of disease from the intestines to the nervous centres, is not attributable to the incautious employment of anodynes, for there are few practitioners who have not been taught by experience to discard or be very cautious in the employment of these in the dysenteries of the young subject.

CHOLERA INFANTUM.—This disease prevailed during the summer months to an extent below that of 1851. A few cases occurred in May, an increased amount in June, although a smaller proportion than in June, 1851. In July, it was notably augmented over its rate of prevalence in the preceding months, and in the July of the preceding year; it diminished in August to about the usual rate of this month, and was rather more frequently presented in September than in the September previous. Its mortality in the five months from May to September, in this year, is by our computation 206, the exact number for the same months in the previous year, but as our population is augmented in this year fully 10,000 over 1851, the proportionate mortality of 1852 is the least. Cholera infantum in this year occasioned 10.5 per cent. of the entire mortality of subjects under 5 years of age, 4.10 per cent. of the aggregate mortality of the year, and its ratio of mortality to population under 5 years was 1.34 per cent. In 1851 it produced 11.8 per cent. of the mortality of subjects under 5 years, 4.7 per cent. of the aggregate annual mortality, and its ratio of mortality to population under 5 years of age was 1.54 per cent.

Limiting the analysis of the five months from May to September inclusive, we find that, in 1852, this disease occasioned 7.28 per cent. of the aggregate mortality of these months, and 17.16 per cent. of the mortality of subjects under 5 years of age, and in 1851 it occasioned 7.09 per cent. of the aggregate mortality of the same months, and 17 per cent. of the mortality of subjects under 5 years in the same period.

DENTITION AND MARASMUS.—The enumeration of causes of infantile mortality would be incomplete without some notice being accorded to dentitional irritation and marasmus. These terms, viewed as mortuary causes, are related to cerebral and intestinal diseases, and might properly be merged in our consideration of disease into the one or the other of those classes, dentitional irrita-

tion being a cause of the former class, marasmus a terminal stage of the latter. We present, in a brief manner, the mortality from these causes to complete the statistics of infantile deaths:—

Monthly Table of Deaths in St. Louis, in 1852, *by Teething and Marasmus.*

	Jan.	Feb.	Mar.	Ap'l.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Teething	...	3	4	5	4	7	17	23	17	...	6	6	92
Marasmus	...	3	1	8	9	8	15	12	...	5	...	1	125

Of the above deaths by marasmus, sixty were in subjects under one year of age, 45 in subjects from 1 to 2 years; 8 in subjects from 2 to 3 years; 7 in subjects from 3 to 5 years, and 6 in subjects from 5 to 10 years. The ratio of deaths of subjects under 5 years to population of same age is 0.79 per cent.

Recapitulation of Mortality of Subjects, under 5 *years, dying of Intestinal Diseases.*—Cholera occasioned of these subjects 119 deaths; diarrhœa, 100; dysentery, 89; cholera infantum, 206; marasmus, 125; aggregate, 639. The ratio of this aggregate to population of same age is 4.19 per cent. Its ratio to the entire mortality of the year of subjects of same age is 32.72 per cent.

Affections of the Nervous System in Children.—Under the titles convulsions, congestion of the brain, inflammation of the brain, meningitis and hydrocephalus are reported in this and other years a large sum of the mortality in the young subject. The term convulsions is, in the official reports, most frequently appropriated to subjects under one year of age; the other forms of cerebral disease are found in the later years of our series.

Tabular Statement of the number of Children under 10 *years of age dying in St. Louis, in* 1852, *by Convulsions, Meningitis, Hydrocephalus, and allied Affections.*

Ages.	Jan.		Feb.		Mar.		Ap'l.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Total.		Aggregate both sexes
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 1 yr.	7	1	6	1	12	..	5	2	2	2	7	5	23	10	10	9	10	6	10	11	6	9	1	3	99	59	158
1 to 2 yrs.	2	1	3	..	1	..	5	6	3	1	2	6	14	11	6	4	3	3	8	2	3	..	1	1	51	35	86
2 " 3 "	..	..	1	1	1	..	1	2	1	1	1	5	3	2	..	3	1	1	2	1	3	2	1	..	15	18	33
3 " 4 "	2	..	..	1	1	..	..	..	..	..	1	3	..	1	..	..	..	..	..	..	1	..	..	..	5	5	10
4 " 5 "	..	..	..	..	..	..	..	2	..	..	1	..	2	1	..	..	..	..	..	..	1	1	..	1	4	5	9
5 " 10 "	..	..	2	..	1	..	..	.	..	1	..	..	2	1	1	1	..	..	1	..	2	..	1	..	10	3	13
Total	11	2	12	3	16	..	11	12	6	5	12	19	44	2[illegible]	17	17	14	10	21	14	1[illegible]	12	4	5	184	125	309

To account for the mortality represented in the above table, one of the principal causes to be considered is dentitional irritation.

Intestinal irritation, including diarrhœa, dysentery and cholera infantum, was probably the next most frequent source of affections of the cerebro-spinal system. In addition to these causes, the eruptive fevers, also pertussis, parotitis and epidemic cholera contributed to create the items of the table. The mortality of subjects of 5 years and under is in ratio to the aggregate mortality of the year of subjects of same age 10.54 per cent., and in ratio to population of the same age 1.35 per cent.

FEVERS, CONTINUED AND PERIODIC.—The relative prevalence of these diseases in this year varies from that of the year before; while continued fevers were in this year diminished, the periodic were much increased. This variation is the more remarkable from the fact that the foreign immigration in 1852 exceeded that in 1851 fully 30 per cent. Another fact worthy of remark is that the comparative general sickliness of July, August, and September, 1852, was lower than that of the same months in 1851, whereas the percentage of mortality in these months in both years was about the same, namely, 40 per cent., and the relative mortality compared with population was in 1852 reduced. Deductions upon these topics are presented in Dr. Engelman's paper, showing the comparative sickliness and mortality in St. Louis for 15 years, which will appear in a subsequent portion of our report. To that paper and the statistics in this and other parts of this report, we must refer our readers for materials wherewith to form a more elaborate disquisition on these topics than we have an opportunity of presenting in detail. We therefore dismiss the subject of fevers by merely presenting its mortuary records.

Tabular Statement of the Monthly Mortality by Bilious Fever in St. Louis, in 1852.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 5 yrs.	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	1	2	..	..	1[1]	..	..	..	4	2	6
5 to 10 "	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	3	..	..	..	..	..	..	..	..	1	4	5
10 " 20 "	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	1	2	..	1	..	..	..	6	1	7
20 " 30 "	2	1	1	..	..	..	1	..	..	..	1	1	5	2	6	3	2	..	3	4	..	1	2	..	23	11	35
30 " 40 "	..	..	..	..	..	..	2	..	..	..	..	..	2	..	7	4	4	2	3	2	..	..	1	..	19	8	27
40 " 50 "	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	2	1	..	1	1	..	..	..	..	5	3	8
50 and over	..	..	..	..	..	..	1	2	..	..	1	..	2	1	1	1	2	2	5	1	..	..	1	1	13	8	21
Unknown age, adults	..	..	..	..	..	..	..	..	..	..	..	..	2	1	3	1	..	..	2	1	1	..	1	..	9	3	12
Total	2	1	1	..	..	..	5	3	..	..	3	1	12	4	22	14	11	7	16	9	3	1	5	1	80	41	121

[1] Subject 2 years 4 months old.

Tabular Statement of the Monthly Mortality by Intermittent Fever in St. Louis, in 1852.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 5 yrs.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	2	..	2
5 to 10 "	..	..	..	..	..	..	..	..	..	1	..	..	.	..	..	..	..	..	1	1	..	..	..	..	1	2	3
10 " 20 "	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	1	..	1	1	4	5
20 " 30 "	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	1	..	5	..	5
30 " 50 "	..	..	..	..	1	..	..	..	..	..	..	..	1	2	..	1	1	..	1	..	1	..	1	..	6	3	9
50 and over	1	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	.	1	1	..	..	..	1	..	7	1	8
Total	2	..	..	1	1	..	..	..	..	1	..	..	2	2	5	1	3	2	5	1	1	1	3	1	22	10	32

Youngest subjects above recorded: 1 of 1 year and 3 months; 1 of 1 year and 8 months.

Oldest subject above recorded: 1 of 72 years, in October.

Tabular Statement of the Monthly Mortality by Congestive Fever in St. Louis, in 1852.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 5 yrs.	..	..	..	..	..	.	..	1	..	..	..	..	1	..	4	1	1	..	..	2	..	..	..	..	6	4	10
5 to 10 "	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	1	1	..	..	..	..	..	2	3	5
10 " 20 "	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..	..	1	..	..	..	..	4	1	5
20 " 30 "	..	..	..	1	..	..	..	..	1	..	1	..	..	..	1	1	..	1	2	..	..	..	..	..	5	3	8
30 " 50 "	..	..	..	..	..	..	..	1	..	1	1	1	1	..	..	3	2	1	5	..	..	..	..	..	9	7	16
50 and over	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	2	..	..	..	..	..	5	..	5
Total	..	..	..	1	..	..	..	2	1	1	2	1	2	..	11	7	5	3	10	3	..	..	..	..	31	18	49

Youngest subject above recorded: 1 male of 7 months, in July.

Tabular Statement of the Mortality by Typhus and Ship Fever in St. Louis, 1852.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M	F.	M.	F.	
Under 10 yrs.	..	1	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	2	1	2	1	2	1	8	5	13
10 to 20 yrs.	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	2	1	..	2	1	1	5	4	9
20 " 30 "	1	..	1	2	3	1	1	1	1	..	1	..	..	1	2	1	4	2	2	..	2	..	..	4	18	12	30
30 " 40 "	1	..	1	1	1	1	..	1	2	1	..	..	2	..	2	..	..	..	1	1	3	..	..	1	13	6	19
40 " 50 "	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	6	..	6
50 " 60 "	..	1	1	..	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	3	2	5
60 and over	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	2
Total	4	2	4	3	5	3	3	2	6	1	2	..	2	1	4	1	5	2	8	3	9	4	3	7	54	30	84
																									Age unknown		1	3	4
																									Total		55	33	88

Of the above, 4 are reported under 3 years of age.

Tabular Statement of the Mortality by Typhoid Fever in St. Louis, 1852.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M	F.	M	F.	M.	F.	M.	F	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 5 yrs.	..	..	..	..	..	..	1	2	..	..	..	..	1	..	..	..	..	..	..	..	1	..	.	2	3	4	7
5 to 10 "	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	.	1	..	1	..	..	1	5	2	7
10 " 20 "	..	..	2	1	..	..	1	..	..	2	..	..	1	..	..	2	3	1	2	1	..	2	1	3	10	12	22
20 " 30 "	1	..	4	1	2	1	1	1	2	1	1	..	3	..	4	1	7	2	5	1	2	..	2	2	34	10	44
30 " 40 "	2	..	3	1	1	2	1	..	3	..	..	2	4	1	7	..	8	..	2	1	2	..	1	..	34	7	41
40 " 50 "	3	1	..	..	2	..	2	..	..	1	..	..	2	..	1	..	2	1	3	..	..	..	..	..	15	3	18
50 " 60 "	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	.	1	1	..	..	..	..	..	.	3	1	4
60 and over	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	1	1	1	..	..	..	5	2	7
Unk'wn age	..	1	..	..	1	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	4	1	5
Total	7	2	12	3	6	3	6	4	5	5	1	2	12	1	14	3	25	5	14	4	7	2	4	8	113	42	155

Weekly Meteorological Table for St. Louis, from March to October, 1852.
From daily observations by GEORGE ENGELMAN, M. D.

1852. WEEK FROM	BAROMETER—CORRECTED FOR TEMPERATURE. IN ENGLISH MEASURE.						
	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Lowest.	Highest.
Mar. 29 to April 4	29.310	29.329	29.242	29.215	29.274	28.848	29.598
April 5 to " 11	29.331	29.353	29.339	29.367	29.374	28.839	29.570
" 12 to " 18	29.174	29.191	29.152	29.203	29.180	28.938	29.363
" 19 to " 25	29.237	29.245	29.181	29.208	29.218	29.002	29.375
" 26 to May 2	29.232	29.230	29.176	29.231	29.217	28.869	29.555
May 3 to " 9	29.497	29.518	29.460	29.501	29.494	29.284	29 677
" 10 to " 16	29.319	29.351	29.314	29.332	29.329	29.112	29.510
" 17 to " 23	29.543	29.570	29.513	29.506	29.533	29.362	29.744
" 24 to " 30	29.358	29.372	29.310	29.323	29.341	29.171	29.528
" 31 to June 6	29.403	29.427	29.358	29.379	29.392	29.243	29.606
June 7 to " 13	29.467	29.473	29.451	29.498	29.472	29.184	29.732
" 14 to " 20	29.524	29.527	29.477	29.479	29.502	29.355	29.768
" 21 to " 27	29.484	29.493	29.452	29.481	29.477	29.224	29.775
" 28 to July 4	29.402	29.418	29.388	29.393	29.400	29.198	29.602
July 5 to " 11	29.410	29.420	29.370	29.402	29 400	29.324	29.488
" 12 to " 18	29.528	29.548	29.496	29.513	29.521	29.383	29.596
" 19 to " 25	29.516	29.532	29.475	29.483	29.501	29.325	29.636
" 26 to Aug. 1	29.440	29.497	29.427	29.433	29.449	29.311	29.547
Aug. 2 to " 8	29.399	29.419	29.379	29.383	29.395	29.259	29.563
" 9 to " 15	29.515	29.546	29.498	29.524	29.521	29.398	29.664
" 16 to " 22	29.464	29.479	29.423	29.432	29.449	29.331	29.609
" 23 to " 29	29.446	29.466	29.406	29.446	29.441	29.354	29.612
" 30 to Sept. 5	29.574	29.606	29.525	29.545	29.562	29.397	29.657
Sept. 6 to " 12	29.502	29.520	29.451	29.472	29.486	29.258	29.612
" 13 to " 19	29.504	29.515	29.455	29.489	29.491	29.269	29.655
" 20 to " 26	29.478	29.494	29 434	29.472	29.469	29.202	29.634
" 27 to Oct. 3	29.504	29.515	29.466	29.512	29.499	29.361	29.654

Weekly Meteorological Table for St. Louis—Continued.

1852. WEEK FROM	OPEN AIR THERMOMETER. FAHRENHEIT.							CLEARNESS OF SKY.					NO. OF DAYS.		
	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Lowest.	Highest.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Fair.	Variable.	Over-clouded
Mar. 29 to April 4	44.0	50.1	57.5	47.0	49.6	29.0	77.0	3.9	5.0	5.3	4.9	4.8	3	3	1
April 5 to " 11	41.2	46.4	54.4	45.9	46.9	34.0	67.0	4.9	4.7	2.1	4.1	3.9	2	4	1
" 12 to " 18	45.2	52.6	63.4	49.2	52.3	38.5	75.5	6.1	4.9	7.6	6.5	6.3	3	4	0
" 19 to " 25	47.2	54.8	60.9	52.0	53.5	42.0	77.5	4.9	5.7	4.3	4.4	4.8	3	3	1
" 26 to May 2	55.6	66.6	73.5	60.7	64.1	40.0	87.0	5.9	5.6	5.6	5.7	5.7	3	3	1
May 3 to " 9	60.1	65.5	74.6	63.0	65.8	57.0	84.5	3.1	2.9	2.4	4.6	3.2	1	5	1
" 10 to " 16	61.0	70.0	75.3	64.6	67.5	53.0	81.0	4.9	5.7	1.7	2.9	3.8	0	7	0
" 17 to " 23	50.0	59.6	67.4	55.6	58.2	42.0	77.0	6.3	5.9	5.7	8.6	6.6	3	4	0
" 24 to " 30	64.4	76.9	83.7	70.6	73.9	54.0	91.0	7.6	7.0	5.6	5.9	6.5	4	3	
" 31 to June 6	62.0	75.9	81.5	67.0	71.6	48.0	94.0	9.6	8.6	6.7	6.9	7.9	5	2	
June 7 to " 13	57.0	69.1	77.6	62.6	66.6	47.0	89.5	6.6	6.7	7.7	10.0	7.7	3	4	
" 14 to " 20	69.0	80.6	85.0	72.5	76.8	65.0	88.5	5.8	5.1	5.6	5.6	5.4		7	
" 21 to " 27	61.3	71.5	76.9	65.3	68.8	56.0	90.0	5.4	6.6	6.9	6.6	6.4	4	2	1
" 28 to July 4	65.4	75.8	82.1	70.0	73.3	57.0	87.5	5.7	5.3	5.1	7.6	5.9	2	5	
July 5 to " 11	74.5	85.0	91.1	79.5	82.5	72.5	94.5	6.4	7.6	5.9	8.9	7.2	3	4	
" 12 to " 18	67.4	77.7	83.7	71.9	75.2	63.0	92.5	7.0	6.9	5.0	7.7	6.6	3	4	
" 19 to " 25	70.4	82.9	88.1	76.4	79.4	68.0	92.0	6.7	6.6	5.9	8.6	6.9	3	4	
" 26 to Aug. 1	68.9	80.8	87.4	75.6	78.2	60.5	95.0	7.7	8.9	7.4	7.0	7.7	5	2	
Aug. 2 to " 8	63.3	71.9	77.6	68.6	70.3	57.5	84.0	6.6	6.4	5.1	7.1	6.3	4	1	2
" 9 to " 15	63.4	71.7	79.3	69.5	71.0	59.0	84.5	4.6	5.0	4.6	7.0	5.3	3	2	2
" 16 to " 22	69.6	76.9	85.1	74.3	76.5	66.0	90.5	3.1	2.9	5.3	5.6	4.2		6	1
" 23 to " 29	66.6	77.1	85.4	72.6	75.4	55.5	90.5	7.0	7.4	7.7	8.9	7.7	3	4	
" 30 to Sept. 5	65.1	75.4	84.3	71.4	74.0	57.5	91.5	8.1	8.3	8.3	8.7	8.3	5	2	
Sept. 6 to " 12	63.2	71.5	80.5	66.9	70.5	52.5	85.5	6.9	7.4	7.3	9.6	7.8	5	2	
" 13 to " 19	69.9	66.6	73.9	66.2	66.9	52.0	85.0	2.1	2.7	4.7	2.1	2.9	1	4	1
" 20 to " 26	56.6	63.0	70.6	59.6	62.4	42.0	78.5	3.6	4.0	6.0	5.6	4.8	3	3	1
" 27 to Oct. 3	58.1	64.9	75.0	64.1	65.5	47.0	79.5	5.6	4.6	4.7	4.6	4.9	3	2	2

Weekly Meteorological Table for St. Louis—Continued.

1852. WEEK.	RAIN. Days.	RAIN. Hours.	RAIN. Quantity.	THUNDER-STORMS.	WINDS DURING WEEK.[1]
Mar. 29 to April 4	3	14½	0.80	2	s. 3 4. w. 4 3 2, n.e. 2, e. 2.
April 5 to " 11	4	31	0.81	2	w. 2 3, s.e. 2, w. 2, s.e. 2, w. 3 2.
" 12 to " 18	2	13	0.56	0	s.w. 2, s.e. 2, n.w. 2, e. 2 3, s.w. 3, w. 2 3.
" 19 to " 25	2	5¾	0.59	1	w. 2 3, n.w. 2 3, s.e. 2, e. 2.
" 26 to May 2	1	4	0.44	2	n.w. 2 3, s.e. 2 3, s.w. 2, s.e. 2 3.
May 3 to " 9	4	15¾	2.61	2	e. 2 3, s.e. 2, s.w. 2 3, w. 3, n.e. 2.
" 10 to " 16	3	10¾	1.64	2	n.e. 2, n.w. 2, s.e. 3, s.w. 2, w. 4 2, s.w. 2 3.
" 17 to " 23	2	7½	0.34	1	n.w. 3, s.w. 2, w. 3 2, n.e. 2, s.e. 2, s.w. 2, w. 2.
" 24 to " 30	1	8½	0.16	2	s.e. 2, n.e. 2, s.w. 2, n.w. 2, s.e. 2, n. e. 3.
" 31 to June 6	2	8	1.30	2	n. e. 2, s.w. 2 3, w. 4, n. 3, e. 2, w. 2.
June 7 to " 13	1	¼	0.05	0	w. 4 3 2, n e. 2, s.e. 2 3 2.
" 14 to " 20	4	8¼	1.89	5	s.e. 2 3, s.w. 2, w. 3, n.w. 2.
" 21 to " 27	2	16½	5.11	2	n.w. 2, n.e. 2, n.w. 3, n.e. 2, s.e. 2.
" 28 to July 4	2	5	3.25	2	s.e. 2, s.w. 2, w. 4, n.e. 2, e. 2, s.e. 2.
July 5 to " 11	2	1	0.31	1	s. 2 3, w. 4, s.e. 3 2, e. 4 3 2, w. 2.
" 12 to " 18	1	5½	0.93	1	n.w. 2, n.e. 2 3, n.w. 2, n.e. 2.
" 19 to " 25	2	2	0.77	2	e. 2, s.e. 2, w. 2 3, n. w. 2.
" 26 to Aug. 1			0.00		n.w. 2, e. 2, s.w. 2 3, n.w. 2 3, w. 2.
Aug. 2 to " 8	1	16	0.42		s.e. 2, n.w. 2, w. 3, 4, n.e. 2, s.e. 2, w. 2.
" 9 to " 15	2	8	0.51		n.w. 2 3, n.e. 3, se. 2, e. 2, n. 3.
" 16 to " 22	3	11	0.62	2	n.e. 3, s.e. 2, s. 2, s.w. 2.
" 23 to " 29	1	¾	0.05	1	s.w. 2, w. 4, s.e. 2, n.w. 2 3, n.e. 2 3.
" 30 to Sept. 5			0.00		s.e. 2, s.w. 2, w. 3, n.w. 2, n.e. 2.
Sept. 6 to " 12			0.00		e. 2 3, n.e 2, n.w. 2 3, w. 3 4 2.
" 13 to " 19	2	14	1.06		n.w. 3, n.e. 2, s.e. 2, n.w. 2.
" 20 to " 26	3	12	0.41		w. 4 2, s.e. 2, w. 3, s.w. 2 3.
" 27 to Oct. 3	2	16	1.90		s.w. 2 3, n.e. 2, s.e. 2 4 3 2.

[1] For explanation of scale of winds, etc., *vide* tables of 1854.

Weekly Mortuary Reports in St. Louis from March to October, 1852.

Week ending Sunday	Weekly aggregate of all ages.	Total of 5 years and under.	Total of cholera.	Total of diarrhœa.	Total of dysentery.	Total of cholera infantum.	Total of periodic fevers.	Total of continued fevers.
April 4	57	24	...	4	1	...	2	...
" 11	64	21	...	2	1	...	4	1
" 18	63	25	...	3	2	...	5	3
" 25	67	30	1	1	1	1	1	4
May 2	86	41	...	1	2	...	1	7
" 9	61	30	1	...	...	...	1	4
" 16	55	25	6	5	...	1	...	1
" 23	69	24	11	2	1	2	1	5
" 30	75	29	18	1	1	1	1	6
June 6	118	40	55	4	3	2	2	1
" 13	109	47	30	7	4	5	3	...
" 20	123	57	36	6	3	10	1	1
" 27	196	73	80	9	5	19	1	2
July 4	204	86	88	12	8	17	7	...
" 11	210	84	72	4	7	18	4	6
" 18	210	96	76	10	10	20	4	2
" 25	190	88	46	11	8	17	8	8
Aug. 1	167	85	34	5	9	25	10	1
" 8	160	72	39	4	10	18	12	7
" 15	139	58	20	11	9	12	12	8
" 22	124	57	20	8	7	9	14	6
" 29	128	52	11	4	12	9	13	2
Sept. 5	105	44	12	3	10	2	9	9
" 12	89	42	4	5	8	7	3	9
" 19	100	45	5	8	6	1	8	11
" 26	107	29	14	5	7	5	11	10
Oct. 3	114	45	16	8	4	3	12	11

City Hospital Report.

CHOLERA, 1852.

T. Y. BANNISTER, M.D., *Hospital Physician.*

SEX.	AGE.	TIME IN HOSPITAL.	RESULT.
Male,	20,	Three days,	Died.
"	30,	One hour,	"
"	18,	Two days,	"
"	30,	Two days,	Discharged.
"	21,	Ten days,	"
"	20,	Ten days,	"
"	19,	Thirteen days,	"
"	9,	Four days,	"
"	33,	Nine days,	"
"	30,	One hour,	Died.
"	26,	Three hours,	"
Female,	30,	Half hour,	"
"	45,	Two days,	"
Male,	50,	Ten days,	Discharged.
"	30,	Eleven days,	"
"	23,	Four days,	"

SEX.	AGE.	TIME IN HOSPITAL.	RESULT.	
Female,	35,	Three days,	Died.	
"	28,	Five days,	"	
"	40,	Six days,	"	
"	37,	Three days,	"	
"	24,	Half hour,	"	
"	30,	Six days,	Discharged.	
"	16,	Eight days,	"	
Male,	45,	One quarter hour,	Died.	
"	35,	One hour,	"	
"	28,	Two hours,	"	
Female,	4,	Two days,	Died.	German immigrants, just arrived.
"	6,	One day,	"	
"	8,	One hour,	"	
Male,	2,	One day,	"	
"	6,	Half hour,	"	
"	11,	One day,	"	
Female,	20,	Two days,	"	
"	13,	Four days,	Discharged.	
"	11,	Twenty days,	"	
Male,	30,	Twenty-two days,	"	
Female,	40,	Twenty days,	"	
Male,	15,	Two days,	Died.	
"	20,	Seven days,	"	
"	36,	Seven days,	"	
"	41,	Four days,	"	
"	25,	Six days,	Discharged.	
"	18,	Twenty-one days,	"	
"	12,	Seven days,	"	
Female,	22,	Ten days,	"	
"	16,	Two days,	Died.	
"	13,	One day,	"	
"	9,	One day,	"	
"	14,	One hour,	"	
"	12,	Ten days,	"	
"	28,	Two days,	"	
"	39,	Two days,	"	
"	11,	Two days,	"	
"	18,	Three days,	Discharged.	
Male,	20,	Nine days,	"	
"	33,	Ten days,	"	
"	27,	Six days,	"	
"	51,	Six days,	"	
"	18,	One day,	Died.	
"	34,	Two days,	"	
"	27,	One day,	"	
"	30,	Two days,	"	
"	28,	One hour,	"	
"	20,	Ten days,	Discharged.	

SEX.	AGE.	TIME IN HOSPITAL.	RESULT.
Male,	10,	One hour,	Died.
"	16,	One hour,	"
Female,	9,	Two days,	"
"	6,	One day,	"
"	28,	Ten days,	Discharged.
"	31,	One quarter hour,	Died.
"	10,	Half hour,	"
"	18,	One hour,	"
"	16,	One day,	"
"	15,	Two hours,	"
"	34,	Six days,	Discharged.
"	22,	One day,	Died.
"	30,	Ten days,	Discharged.
"	6,	Eighteen days,	"

Cholera cases mostly Germans (say three-fourths) just arrived. Cases which terminated fatally after having survived several days in hospital, passed off in profound coma, generally; and upon examination, the ventricles of the brain were always filled with serum. Treatment—the usual routine; cause—remote, unknown; proximate—Mississippi water, crowded and badly-ventilated cellars, and an inordinate indulgence in improper food. It is proper to state that a large proportion of these cases were brought to the hospital *moribund.*

TYPHOID AND TYPHUS, 1852.

SEX.	AGE.	NO. OF DAYS IN HOSPITAL.	RESULT.
Male,	30,	25,	Discharged.
Female,	20,	15,	"
Male,	30,	3,	Died.
"	27,	19,	Discharged.
"	20,	9,	Died.
"	20,	26,	Discharged.
"	22,	20,	"
Female,	20,	6,	Died.
Male,	31,	10,	Discharged.
Female,	18,	3,	Died.
"	18,	1,	"
Male,	40,	30,	Discharged.
"	55,	13,	"
"	33,	5,	Died.
"	30,	30,	Discharged.
"	37,	15,	"
"	20,	14,	"
"	22,	10,	"
"	22,	42,	"

SEX.	AGE.	NO. OF DAYS IN HOSPITAL.	RESULT.
Male,	35,	37,	Discharged.
"	30,	23,	"
Female,	21,	24,	"
Male,	22,	37,	"
"	22,	15,	"
"	28,	9,	"
"	22,	5,	"
"	60,	17.	"
Female,	18,	84,	"
"	30,	34,	"
Male,	29,	14,	"
"	35,	1,	Died.
Female,	20,	11,	"
Male,	30,	5,	"
"	30,	15,	Discharged.
"	24,	13,	Died.
"	18,	33,	Discharged.
"	33,	34,	"
"	27,	7,	Died.
"	30,	6,	"
"	40,	5,	"
"	21,	4,	"
"	35,	47,	Discharged.
Female,	20,	21,	Died.
Male,	29,	17,	"
Female,	30,	20,	"
Male,	26,	21,	Discharged.
"	26,	14,	Died.
"	30,	18,	Discharged.
"	53,	13,	"
"	30,	11,	"
"	30,	33,	"
"	52,	35,	"
"	26,	16,	"
"	27,	41,	"
"	27,	21,	"
"	26,	12,	Died.
"	20,	7,	Discharged.
"	30,	3,	Died.
"	50,	8,	"
Female,	25,	4,	"
"	32,	14,	Discharged.
"	25,	23,	"
Male,	30,	45,	"
"	21,	54,	"
"	31,	9,	"
"	30,	15,	"
"	22,	60,	"

SEX.	AGE.	NO. OF DAYS IN HOSPITAL.	RESULT.
Male,	29,	7,	Discharged.
"	28,	9,	"
"	30,	7,	"
"	25,	20,	"
"	24,	18,	"
"	19,	4,	Died.
"	23,	9,	Discharged.
"	37,	10,	"
"	40,	29,	"
"	23,	26,	"
"	22,	5,	Died.
"	26,	9,	"
"	30,	11,	Discharged.
"	22,	14,	Died.
"	30,	9,	Discharged.
"	23,	5,	"
"	47,	34,	"
"	31,	13,	"
"	35,	14,	"
"	28,	5,	"
"	60,	2,	Died.
"	22,	10,	Discharged.
"	21,	24,	"
"	22,	16,	"
Female,	18,	11,	Died.
Male,	10,	12,	"
"	24,	2,	"
Female,	25,	8,	Discharged.
Male,	30,	13,	"
"	30,	12,	"
"	39,	14,	"
"	29,	17,	"
"	17,	2,	Died.
"	50,	22,	Discharged.
"	23,	9,	"
"	20,	20,	"
"	20,	14,	"
"	19,	10,	Died.
"	19,	11,	Discharged.
"	22,	9,	Died.
"	44,	14,	Discharged.
"	36,	10,	"
"	43,	3,	Died.
"	22,	26,	Discharged.
"	20,	8,	"
"	35,	12,	"
"	22,	14,	"
"	40,	10,	"

SEX.	AGE.	NO. OF DAYS IN HOSPITAL.	RESULT.
Male,	35,	29,	Discharged.
"	30,	15,	"
"	25,	11,	"
"	35,	8,	"
"	23,	7,	"
Female,	13,	20,	"
Male,	50,	15,	"
"	52,	4,	Died.
Female,	30,	7,	"
"	25,	9,	"
Male,	14,	11,	Discharged.
"	33,	15,	"
Female,	10,	14,	"
Male,	21,	20,	"
"	28,	13,	"
Female,	22,	8,	Died.
Male,	70,	3,	"
"	32,	29,	Discharged.
"	44,	1,	Died.
"	24,	11,	Discharged.
"	29,	1,	Died.
"	40,	8,	Discharged.
"	40,	14,	"
"	26,	2,	Died.
"	56,	1,	"
"	26,	10,	Discharged.
"	19,	10,	Died.
"	19,	10,	Discharged.
"	22,	9,	Died.
"	44,	14,	Discharged.
"	36,	10,	"
"	43,	3,	Died.
"	22,	26,	Discharged.
"	20,	8,	"
"	35,	12,	"
"	22,	4,	Died.
"	40,	10,	Discharged.
"	35,	29,	"
"	30,	5,	"
"	25,	11,	"
"	35,	8,	"

Report of the Cases of Cholera among Emigrants landed from Steamboats at Quarantine Island, St. Louis, 1852. Reported by F. P. LEAVENWORTH, M. D., Quarantine Physician.

Nativity of subjects.	Sex.	Age.	Date of arrival.	Date of discharge.	Form of disease.	RESULTS AND REMARKS.	
Germany	M.	52	April 26	April 26	Cholera	Died.	
Ireland	F.	8	26	May 10	"	Recovered.	
Denmark	M.	20	May 18	25	"	Died.	
Germany	"	30	21	21	"	"	
"	F.	31	22	31	"	Recovered.	
"	M.	21	21	25	"	Died.	
England	"	51	25	26	"	"	
Germany	"	35	25	25	"	"	
America	"	32	26	June 12	"	Recovered.	
Ireland	"	32	26	May 26	"	Died in 3 hours.	
Germany	"	32	26	27	"	Died in 2 hours.	
"	"	24	28	28	"	Recovered. Sequelæ typhoid fever.	
France	"	11	28	June 4	"	Died.	
Germany	F.	33	30	May 30	"	"	
"	M.	42	30	30	"	"	
New York	"	24	30	June 8	"	"	
Ireland	F.	25	June 2	6	"	"	
Germany	"	32	5	17	"	Recovered.	
Michigan	M.	32	5	12	"	"	
Ireland	F.	23	5	12	"	Died.	
Germany	M.	70	9	12	"	"	
"	F.	52	9	11	"	"	
"	"	30	9	15	"	Recovered.	
"	M.	40	11	17	Cholerine	"	
Ireland	F.	80	11	11	Cholera	Died.	
Germany	"	60	11	11	"	"	
"	M.	18	12	12	"	" in 3 hours.	
Ireland	"	22	12	17	Cholerine	Recovered.	
"	F.	18	12	17	"	"	
Germany	"	10	14	18	"	Recov'd.	From steamboat Atlantic.
"	"	3	14	15	"	Died.	" " "
"	M.	20	14	18	"	Recov'd.	*Note.*—Under the term cholerine we include cases which presented all the usual symptoms of cholera except collapse. All of the cases included in this bracket came from on board the steamboat Atlantic, on which there had been fifteen deaths on the voyage up from New Orleans. The boat was over-crowded.
"	"	8	14	19	"	"	
"	"	23	14	24	"	"	
"	"	12	14	17	"	"	
"	"	25	14	17	"	Died.	
"	F.	41	14	19	"	Recov'd.	
"	"	8	14	19	"	"	
"	"	5	14	19	"	"	
Ireland	"	20	14	26	"	"	
"	"	18	14	26	"	"	
Germany	"	33	14	14	"	"	
"	"	36	14	17	"	Died.	
"	"	30	14	17	"	"	
"	"	38	14	17	"	"	
"	"	30	14	14	"	"	
"	"	35	14	26	Cholera	Recov'd.	Was in collapse.
"	M.	30	18	24	Cholerine	Died.	From steamboat Western World.
"	"	41	17	22	"	Recovered.	
"	"	48	17	20	Cholera	Died.	
"	F.	46	17	18	"	"	
"	"	43	17	17	"	"	
"	"	52	17	17	"	"	
"	"	34	17	28	"	"	
"	"	6	17	19	Cholerine	"	

Report of the Cases of Cholera among Emigrants at St. Louis—Continued.

Nativity of subjects.	Sex.	Age.	Date of arrival.	Date of discharge.	Form of disease.	RESULT AND REMARKS.	
Germany	F.	5	June 17	June 21	Cholerine	Died.	These subjects were all from the steamboat Western World, which was loaded with two hundred and seventy-five paupers. Nine were buried from this boat on its way from New Orleans. The first recorded were sick when landed, the others were attacked on the island.
"	"	18	17	24	Cholera	Recovered.	
"	"	9	17	21	Cholerine	"	
"	"	13	17	20	"	Died.	
"	M.	4	17	28	"	Recovered.	
"	F.	7	17	20	"	"	
"	"	26	17	28	Cholera	"	
"	"	36	18	18	"	Died.	
"	"	1	18	18	"	Dead when brought in.	
"	M.	1	18	18	"	Died.	
"	"	46	18	23	"	"	
"	F.	60	18	21	Cholerine	Recovered.	
"	"	41	19	July 24	Cholera	"	
"	M.	60	18	June 19	"	Died.	
"	F.	43	18	22	"	"	
"	"	36	18	30	"	Recovered.	
"	M.	4	18	27	Cholerine	"	
"	"	2	21	29	Cholera	Died.	
"	"	24	23	26	"	Recovered.	
Scotland	"	42	22	22	"	Died.	
Germany	"	40	22	24	"	" of secondary fever.	
Ireland	"	55	27	Aug. 5	Cholerine	Recovered.	
Germany	"	30	30	July 3	Cholera	Died. Cholera supervening on continued fever.	
"	"	43	July 5	5	"	Died in 2 hours.	
"	"	8	10	22	"	Recovered.	
"	"	19	8	8	"	Died.	From steamboat Columbus.
"	F.	3	8	8	"	"	
"	M.	3	8	8	"	" in 10 minutes.	
"	F.	42	9	15	Cholerine	Recovered.	
"	"	42	9	10	Cholera	Died.	
"	M.	16	8	20	"	Recovered.	
"	F.	14	8	16	"	"	
"	"	21	8	10	Cholerine	"	
"	M.	6	8	18	Cholera	Died.	
"	F.	18	8	26	Cholerine	Recovered.	
"	M.	44	10	24	"	"	
Bohemia	"	30	9	9	Cholera	Died.	
Portugal	"	28	13	14	"	" Cholera supervening on continued fever.	
Germany	"	43	17	17	"	"	
France	F.	47	18	27	"	Recovered.	
"	M.	½	13	13	"	Died in 6 hours.	
Germany	F.	30	17	23	Cholerine	Recovered.	
Bohemia	"	24	23	23	Cholera	Died same night.	
Germany	"	18	23	25	"	Recovered.	
Bohemia	"	35	23	27	Cholerine	"	
New York	M.	30	23	23	Cholera	Died.	
Germany	"	39	26	26	"	" same night.	
"	"	30	26	Aug. 6	"	Recovered.	
Scotland	"	19	August 7	17	"	"	
Ireland	"	21	8	9	"	Died.	
"	"	45	8	12	"	"	
"	"	40	9	15	Cholerine	Recovered.	
Germany	"	22	30	31	Cholera	Died.	
"	"	48	Sept. 14	Sept. 15	"	"	
"	F.	16	14	21	"	"	
"	M.	52	14	17	"	"	
"	F.	34	15	16	"	"	
"	"	13	18	23	"	"	
"	M.	8	15	22	"	Recovered.	

Report of the Cases of Cholera among Emigrants at St. Louis—Continued.

Nativity of subjects.	Sex.	Age.	Date of arrival.	Date of discharge.	Form of disease.	RESULT AND REMARKS.
Ireland	F.	27	Sept. 21	Oct. 2	Cholera	Recovered.
Tennessee	"	16	28	1	"	Died.
Ireland	M.	30	28	Sept. 28	"	" in 3 hours.
Germany	F.	6	Oct. 4	Oct. 7	"	"
Ireland	M.	30	6	20	"	Recovered.
Germany	F.	43	15	22	"	"
"	"	46	15	22	"	"
"	"	3	16	16	"	Died same night.
"	M.	29	15	28	"	Recovered.
"	"	19	23	Nov. 2	"	"
Ireland	"	35	23	Oct. 31	"	"
Sweden	F.	40	23	Nov. 7	"	"
"	M.	5	23	Oct. 23	"	Died same night.
"	F.	40	23	24	"	"
"	"	35	23	27	"	Recovered.
"	"	13	23	Nov. 7	Cholerine	"
"	M.	40	30	Oct. 30	Cholera	Died same night.
Ireland	"	6	Nov. 2	Nov. 3	"	"
"	F.	22	2	10	"	" Cholera supervening on fever.
"	M.	32	2	12	"	Recovered.
"	F.	9	2	13	"	"
"	"	30	2	10	"	Died. Disease supervened on parturition.
Germany	"	58	2	10	"	Recovered.
"	"	23	2	20	"	"
"	M.	74	2	5	"	Died.
"	F.	44	3	20	"	Recovered.
"	M.	55	3	11	"	"
"	"	17	3	15	"	Died.
Ireland	"	12	3	7	"	"
Scotland	F.	23	7	7	"	" same night.
Italy	M.	57	5	5	"	"
Germany	"	17	7	22	"	"
"	"	24	7	18	"	Recovered.
"	F.	25	7	10	"	Died.
"	M.	33	7	9	"	"
"	"	20	10	13	"	"
"	"	37	10	Dec. 1	"	Recovered.
"	"	50	10	Nov. 10	"	Died same night.
"	F.	17	10	18	"	Recovered.
France	"	62	10	10	"	Died same night.
Ohio	M.	26	10	10	"	" "
Germany	F.	38	10	15	"	"
"	M.	53	10	10	"	"
"	F.	38	12	20	"	Recovered.
Ireland	M.	35	14	14	"	Died same day.
Germany	"	10	15	16	"	"
"	"	7	17	18	"	"
"	"	2	17	20	"	Recovered.
"	"	48	23	23	"	Died before reaching hospital.
"	"	40	23	23	"	" same day.
"	F.	20	23	23	"	" same night.
"	F.	35	23	Dec. 24	"	Recovered. Delivered prematurely December 1.
"	M.	3	23	Nov. 23	"	Died.
Bohemia	"	17	28	28	"	"
"	"	2	28	28	"	"
Ireland	"	55	Dec. 1	Dec. 2	"	"
"	F.	60	1	1	"	"
"	"	18	1	3	"	"
"	"	24	1	3	"	"
Germany	"	7	1	6	"	"
"	M.	10	1	8	"	Recovered.

Recapitulation of Foregoing.

Ages.	Males admitted.	Males dying.	Females admitted.	Females dying.	Total admitted.	Total died.
Under 5 years	10	7	2	2	12	9
5 to 10 "	8	4	10	4	18	8
10 to 20 "	13	8	14	5	27	13
20 to 30 "	16	9	13	8	29	17
30 to 40 "	19	12	21	10	40	22
40 to 50 "	16	12	13	5	29	17
50 to 60 "	9	7	3	2	12	9
60 years and over	3	3	5	4	8	7
	94	62	81	40	175	102

Of the above, 8 died within 3 hours; one more within 6 hours; and 12 more are reported as dying on the same day or night of their arrival, or within 12 hours.

Report of Cases of Diarrhœa received into the Quarantine Hospital, 1852.

Nativity of subject.	Sex.	Age.	Date of reception.	Date of discharge.	RESULT AND REMARKS.
Germany	M.	1	Jan. 6	Feb. 4	Recovered.
"	F.	14	Feb. 20	Mar. 10	"
"	"	5	20	10	"
"	"	2	20	10	"
Ireland	M.	28	April 12	April 13	Died.
Germany	"	11	26	30	Recovered.
"	"	6	26	30	"
Ireland	"	4	26	10	"
Germany	F.	12	May 21	24	"
"	"	¾	21	24	"
Massachusetts	M.	21	25	June 1	Died.
France	"	19	28	1	Recovered.
"	F.	9	28	4	"
Ireland	M.	26	June 2	12	"
Germany	"	22	3	6	"
"	F.	41	3	6	"
"	M.	25	4	15	"
"	F.	2½	9	12	Died.
England	M.	20	11	15	Recovered.
Germany	F.	47	17	20	" } From steamboat Western World.
"	"	27	17	20	"
"	M.	30	18	20	"
"	F.	19	21	24	"
Ireland	M.	38	17	18	Died.
England	F.	17	July 1	3	Recovered.
Bohemia	M.	28	1	3	"
"	"	32	1	3	"
Germany	F.	42	9	August 3	"
"	M.	2	11	July 26	"
"	"	48	10	18	"
Bohemia	"	4	9	13	"
Germany	"	4	13	14	Died.
"	F.	40	17	20	Recovered.
"	M.	55	21	27	"
"	F.	48	21	27	"
"	"	19	21	27	"
"	M.	24	21	24	"
Bohemia	F.	3	24	24	Died same night.
Germany	M.	2½	23	26	Recovered.
"	"	26	24	26	"
"	F.	32	25	27	"
France	M.	22	24	26	"
Bohemia	"	30	August 5	11	"
"	F.	31	8	11	"
Ireland	"	20	5	11	"
Germany	M.	26	8	11	"
"	"	34	Sept. 14	17	"
"	"	½	14	15	Died.
Ireland	F.	½	25	27	"
"	M.	1¼	28	Oct. 7	"
New York	"	17	Oct. 6	8	Recovered.
Germany	F.	22	15	20	"
"	"	14	15	20	"
"	M.	49	15	21	Died.

Quarantine Report, 1852. *Diarrhœa.*—Continued.

Nativity of subject	Sex.	Age.	Date of reception.		Date of discharge.		RESULT AND REMARKS.
Germany	M.	47	Oct.	15	Oct.	21	Recovered.
Ohio	"	30		20		20	Died.
Germany	"	8		20		22	Recovered.
Illinois	"	26		22		26	"
"	F.	19		22		26	"
Ireland	M.	22		24		30	"
Sweden	F.	2		26	Nov.	2	Died.
"	"	2½		28		7	Recovered.
Germany	"			29		1	Died.
Ireland	"	2	Nov.	2		6	Recovered.
"	"	2		2		11	Died.
"	"	12		2		12	Recovered.
"	M.	2		2		8	Died.
"	F.	34		2		4	Recovered.
"	"	6		2		13	"
Germany	"	1½		2		4	"
"	"	2½		2		4	Died.
Ireland	M.	2		3		5	"
"	"	4		7		10	"
"	"	4		5		7	Recovered.
Scotland	F.	27		5		7	"
Sweden	M.	12		2		7	"
Germany	"	24		7		13	"
France	F.	13		10		13	"
Germany	"	22		10		13	"
"	"	20		10		13	"
"	"	33		11		13	"
"	M.	7		11		13	"
"	F.	28		12		15	"
"	"	6		13		19	"
"	M.	48		16		19	"
"	"	2		17		20	"
"	"	25		23		28	"

Report of Cases of Diseases not before enumerated which occurred at Quarantine, 1852.

Nativity of subjects.	Sex.	Age.	Date of arrival.	Date of discharge.	Form of disease.	RESULT AND REMARKS.
Missouri	M.	40	Jan. 4	Jan. 29	Erysipelas	Recovered. Returned Californian.
Germany	"	4	12	16	Pneumonia	Died.
"	F.	5	6	Feb. 4	Remittent fever	Recov'd. } This term implies
"	"	34	6	7	Puerperal "	Died. } bilious fever.
"	M.	34	14	14	Erysipelas	Recovered.
Scotland	"	27	11	18	Remittent fever	"
Missouri	"	21	Feb. 3		Variola	} Sent to Smallpox Hospital.
"	"	29	9		"	} Both from California.
Ireland	"	24	17	24	Remittent fever	Recovered.
Germany	F.	34	20	20	Typhoid "	Died.
Ireland	M.	30	21	Mar. 1	Remittent "	Recovered.
"	"	23	21	8	Rheumatism	"
"	"	38	21		Variola	Sent to Smallpox Hospital.
"	"	20	Mar. 9	20	Typhus fever	Recovered.
"	"	12	9	12	Remittent "	"
Germany	"	23	19	Oct. 21	Phthisis	Much improved in health.
Ohio	"	24	19	April 9	Typhoid fever	Recovered.
Ireland	"	20	21	8	Rheumatism	"
Germany	"	26	27	10	Typhus fever	"
"	F.	30	21		Variola	Sent to Smallpox Hospital.
Ireland	M.	21	26	May 25	Typhoid fever	Recovered.
"	F.	6	26	10	Remittent "	"
"	"	20	May 5	14	Puerperal "	" Abortus on steamboat May 2.
N. Carolina	M.	42	11	18	Typhoid "	Recovered. } Convalescent
France	"	11	28	June 4	" "	" } on landing.
Ireland	"	36	June 2		" "	" }
Germany	"	24	8	8	" "	" Convalescent on landing, remov'd by friends.
"	F.	1	5	7	Marasmus	Died.
"	"	19	10	12	Intermittent fever	Recovered.
Ireland	M.	25	11	20	Typhus "	Died.
"	"	4	11	11		" Brought in dying.
"	F.	15	12	20	Typhoid "	Recovered. Convalescent when landed.
Germany	M.	27	17	July 7	Syphilis	"
"	F.	40	19	June 28	Rheumatism	"
"	"	3	27	July 18	Remittent fever	"
France	M.	43	16	June 24	" "	"
"	"	21	19	24	" "	"
Virginia	"	55	22	July 24	" "	"
Ohio	"	23	26	2	Disease of heart	Died.
Ireland	F.	30	27	8	Puerperal fever	Recovered.
U. States	M.	22	July 1	1	Fever	Died. Returned Californian.
"	"	54	1	12	Ch. dysentery	Removed by relatives, "
"	"	42	1	3	Remittent fever	Died (of cholera supervening, was also from California).
Germany	"	1	7		Pertussis	Died suddenly with convulsions.
"	F.	25	8	11	Remittent fever	Recovered.
Canada	M.	21	9	14	Intermittent "	"
Ireland	"	27	14	21	Remittent "	"
Scotland	"	22	15	21	" "	"
New Jersey	"	35	15	18	Intermittent "	"
Germany	"	30	16	16	Fever	Died shortly after admission.

Report of Cases of Diseases not before enumerated which occurred at Quarantine, 1852—Continued.

Nativity of subjects.	Sex.	Age.	Date of arrival.	Date of discharge.	Form of disease.	RESULTS AND REMARKS.
Germany	F.	6	July 23	July 29	Scarlet fever	Recovered.
"	"	1	23	30	" "	"
"	M.	4	23	30	" "	"
"	F.	6	24	Aug. 5	" "	"
England	M.	4	25	4	" "	"
Spain	"	26	23	July 31	Remittent fever	"
Scotland	"	9	24	29	" "	" Convalescent on admission.
Ireland	"	23	23	30	Intermittent "	"
Germany	"	52	25	29	Typhoid "	" Convalescent on admission.
"	"	14	25	29	Intermittent "	"
Ireland	"	6	24	28	Enteritis	Died.
Bohemia	F.	28	Aug. 5	Aug. 12	Remittent fever	Recovered.
"	M.	32	5	12	" "	"
Scotland	"	24	5	28	Typhoid "	Died.
Tennessee	"	16	5	9	Intermittent fever	Recovered.
Ireland	"	28	8	11	" "	"
"	F.	26	8	18	" "	"
"	"	3	9	14	" "	"
U. States	M.	30	11	Sept. 8	" "	" From California.
Germany	"	38	23	Aug. 29	" "	"
"	"	26	29	Sept. 6	Remittent "	"
"	"	23	Sept. 14	Oct. 2	" "	"
Maryland	"	39	18	Sept. 26	" "	"
Germany	"	25	18	25	" "	"
Ireland	"	24	19	Oct. 2	Intermittent "	"
"	"	27	22	Sept. 29	Remittent "	"
"	"	29	Oct. 5	Oct. 23	" "	"
Saxony	"	24	9	14	" "	"
Germany	"	53	20	31	Hepatitis	Died.
Sweden	F.	20	23	Dec. 8	Phthisis	"
Ireland	"	6	Nov. 2	Nov. 8	"	"
"	M.	48	2	18	Typhus fever	"
"	"	23	2	12	" "	Recovered.
Germany	"	19	1	11	Remittent "	"
Scotland	"	31	1	11	" "	"
Germany	"	15	1	11	" "	"
"	"	18	1	11	" "	"
Scotland	F.	2	5	6	Marasmus	Died.
France	M.	44	11	26	Enteritis	Recovered.
Ireland	F.	40	12	Dec. 10	Erysipelas	"
Germany	M.	35	23	1	Dysentery	"
Negro slave	"	35	23	Nov. 24	Remittent fever	Died. From California.
Germany	"	19	27		Varioloid	Sent to Smallpox Hospital.
"	"	10	Dec. 1	Dec. 7	Dysentery	Died.
"	"	4	1	24	"	Recovered.
"	"	24	7	24	Typhoid fever	"
Ireland	F.	12	12	25	Remittent "	"

DISEASES OF THE STATE BEYOND THE LIMITS OF ST. LOUIS.

The general character of the communications received by us, referring to the prevalent diseases of the agricultural districts of the State, in this year, bears out the statement made in the opening pages of our report, namely: that the diseases of the commercial centre are the prevailing diseases of the State. We shall, therefore, condense as much as possible our remarks in the present division of the report, taking up, first, the progress of cholera, and tracing it in very brief terms.

Cholera in St. Louis County.—The following letter refers to an irruption of this disease, which occasioned much alarm in the county, in May, 1852. It was furnished by Dr. J. J. Dupuy, then of St. Louis:—

St. Louis, July 2, 1852.

"Dr. Reyburn—

"Dear Sir: In complying with your request to furnish an account of the character of the diseases and local peculiarities of the country which came under my observation during my brief probation on a portion of the Pacific Railroad, now in progress of construction, I have thought it best to limit myself to a strict record of facts as they were presented. I leave you to draw from them such deductions as may seem to you most reasonable and appropriate. If they can, in any way, aid you in your investigations, or assist in elucidating any of the obscurities connected with the cause of the disease, I shall feel gratified in having in some measure served you.

"During the time of my continuance as attending physician, the disease which attracted pre-eminent consideration was cholera, bearing all the characteristic features of that scourge, without any unusual modifications. The sudden seizure, copious rice-water discharges, continually recurring cramps in the extremities, and tendency to rapid collapse, were the invariable symptoms in every case, with unimportant variations in the order of their appearance; some of the cases were marked by diarrhœa of variable continuance previous to the invasion of the cholera, but I was assured, in other cases, that there were no premonitions, or, if any, so slight as to be unworthy of suspicion or regard. Diarrhœa was quite prevalent during the time among the laborers, but yielded to the ordi-

nary remedies with greater or less facility in every case. I saw several instances of bilious fever, and uniformly found a diarrhœa a prominent symptom. Indeed, the choleric cause manifested its impression upon the system in every case that came under treatment, coinciding, in this respect, with all previous seasons and localities in which it has prevailed.

"The laborers were chiefly Irish, in the lower walks of life, addicted to intemperance, irregularities of living, and habits of alternate idleness and industry, spending their leisure time in debauchery, and unnecessary and careless exposure. The tenements in which they lived were framed shanties, variably situated on the hill-tops, slopes, and ravines or valleys, imperfectly ventilated, and deficient in cleanliness, though in every respect as decent and comfortable as the same class are accustomed to occupy in this or other large cities, and, in consideration of the advantages of a free atmosphere and country life, would lead to the conviction that their condition was greatly improved. It is proper to mention, in this connection, that the disease was not confined to the laborers, strictly so called, of the class I have before mentioned. In the family of one of the contractors, living in a tenement more comfortably finished, more freely ventilated, and, in point of cleanliness, much better kept, but situated on the section where most of the sickness occurred, there were several fatal cases, two among the females of the family, where the habits or mode of life could hardly be suspected as the exciting cause.

"The sickness was chiefly upon the 15th and 16th sections, especially the latter, where the proportion of cases was not less than 5 to 1. The greater amount of work on this portion of the road, requiring an increased number of laborers, may reasonably be regarded as having its influence on the greater proportion of mortality here. As this division presented some characteristics more prominent than the former, I shall select it from my representation, mentioning, however, that it is only a magnified delineation of the adjoining country, through which the road lies. The general contour, as far as my observation extended, is the same. This region, lying about sixteen miles from St. Louis, to some four or five miles southeast of Manchester, is very irregular and much broken in its general aspect, presenting a continual diversity of high hills and deep ravines. Indeed, it is worthy of note, that in the whole line of forty miles now under contract, the only two hills of such elevation and

magnitude as to render it more feasible to tunnel than to grade in the ordinary way, occur upon this 17th 'Section.'

"The lands, for the most part, I regarded as inferior in point of fertility, and although greater portions were covered with quite a luxuriant growth of forest timber, those portions which had been cleared and subjected to cultivation, afforded rather a discouraging prospect, and other parts appeared to be abandoned as unprofitable for tillage. The soil was shallow, as appeared upon the banks where the grading had been effected, presenting a yellow or red argillaceous subsoil, which extended for many feet below the surface, and underlaid by hard strata of limestone rock, requiring the free use of powder to remove. These strata of stone constitute the chief character of rock through which the tunnelling had to be prosecuted.

"The water used was derived from numerous springs in the vicinity. It was subjected to no other test than that of the senses, but, as far as such observations could decide, presented nothing peculiar. In appearance, it was remarkably clear, affording a slight but perceptible limestone taste, far less obvious than most of the waters of that character which I have tried in this and other limestone countries, and, among those who used it, was regarded as well flavored and agreeable.

The season has been marked by some peculiarities which may probably be deserving of attention. The spring has been cold and backward, accompanied with such an unusual amount of rain as to cause the planters to express apprehension of their various crops. Anterior to the time of my engagement on the road (29th of May), there had not been a single occurrence of these continued spells of warm weather, which usually precede the advent of summer, and give a foretaste of its oppressive heat. It was during the week in which I was then engaged that the first occurred, but whether it in any way had its influence in regulating the amount of disease, I am not prepared to affirm, my impression, however, is, that the diminished number of cases that appeared in the interior between my arrival and departure, may be sufficiently explained by the fact, that the first startling outbreak of the disease produced alarm that caused many to leave, and thus diminish the aggregate amount of material on which the disease could manifest itself; and, secondly, by the prompt attention to premonitory symptoms. Nor am I prepared to state whether those laboring in the sun, or others constantly engaged in tunnelling operations, were most liable to attack, but, as far as the location of the cabins in which they

slept is concerned, whether upon the free exposure of the hill-tops, or under the dense forest shades of the valleys, there seemed to be no difference in this regard.

"In consideration of the unequal distribution of disease upon the various 'sections,' and that the habits of living of the laborers were with great uniformity the same, and of the occurrence of several cases in the family of the contractor under better circumstances, I was induced to ascribe it to some local cause, but how to discover and define, to give to it a 'local habitation and a name,' was a problem too mysterious and inscrutable for me to solve."

Cholera in St. Charles County.—Between the 1st and 20th of July, a serious outbreak of the disease occurred in the upper part of this county in a new German settlement adjacent to Naylor's store, about 20 miles from St. Charles, the county seat, and midway between the Missouri and Mississippi Rivers. The visitation was confined to this settlement, which had recently received a considerable addition of European immigrants, amongst whom the disease broke out. The number of deaths was reported to be eighty.

In *Gasconade County*, as we learn from Dr. Nassee, light cases of cholera, very different from those of the previous year, occurred in the non-acclimated immigrants, seldom affecting those who had sojourned any length of time in the county.

In *Boone County*, a few cases of the disease occurred in Rocheport on the Missouri River, about 100 miles from the mouth, in the early part of July.

In *Cooper County.* From Dr. Charles Chandler we learn that, during the summer, the disease prevailed in a small village a few miles from Booneville. The disease was very malignant, and confined itself chiefly to the dissipated class.

In *Chariton County.* Towards the end of October, several cases were reported in Brunswick, about 160 miles above the mouth and on the north bank of the river. These were in a family of immigrants from Kentucky on their way to Davies County, Mo.

In *Lafayette County.* From the *Lexington Express*, we find that the disease prevailed in Lexington and other parts of this county for several weeks between July 1st and August 10th.

The disease in this year was more sparsely distributed in the counties on the Missouri River, than in the previous year; indeed, its prevalence in that section of the State scarcely excited any attention. It was in the southeastern section, in the counties on or adjacent to the Mississippi, a section but little invaded in the pre-

ceding year, that its most violent outbreaks occurred. The earliest and most severe visitation in this section, in this year, was *Cape Girardeau County*, at Jackson, the county seat, several miles west of the Mississippi. An intelligent citizen of the place informs us that, in the early part of June, the weather was unusually cool and humid, at which time diarrhœa became very prevalent. Shortly after the weather became dry and sultry, when cholera broke out. At first it appeared like an attack on a besieged city; a few scattering cases occurred, the surrender, as it were, of the sentinels at the outposts; soon the grand assault set in, vigorously and fearfully destructive, the entire place being beset by the enemy. The entire population of the town, at this time, numbered about 350, but, by desertion, its ranks were reduced at the time of the outbreak to about 200, and, in the space of two weeks, one-fourth of this population was cut off. The disease first appeared on Friday, the 11th of June, and increased in violence until Sunday the 20th, when the panic reached its height, and a general retreat of the inhabitants ensued. With the exception of a few, whose noble spirit of sympathy for the sufferers detained them at their fearful post, all who were not prevented by sickness already in their families fled the place. On Monday, the 21st, the epidemic had attained its crisis. Nine persons were lying dead in the town, and not more than six able-bodied citizens were left to attend the sufferers. The disease then subsided, and, on Saturday the 26th, the last fatal case occurred. Assistance was generously afforded the sufferers by citizens of Cape Girardeau, who went to Jackson during the scourge.

The exact mortality in the town is stated by Ralph Guild, Esq., to have been 35 whites and 18 blacks. In the adjacent portions of the county, the mortality is estimated at 40. But eight or ten of the inhabitants of the town passed through the epidemic without experiencing an attack of the disease.

In *Washington County.* A letter from Potosi of date August 9th, states that cholera had been raging in the town and vicinity for three weeks, twenty-five persons having died of it. The town was almost deserted, business was suspended, and great distress was occasioned. It was still prevalent at the date of the letter. This county is located west of St. Genevieve County. Potosi, the county seat, being about 40 miles nearly due west of the town of St. Genevieve and 60 miles southwest of St. Louis.

In *St. Genevieve County.* Scattering cases of the disease appeared in this county in July, and, at the same time, in *Scott County* a

severer visitation prevailed. This last county is located south of Cape Girardeau, at the head of the immense swamp district between the Mississippi and St. Francis Rivers. The one prominent fact may be briefly stated, that throughout the entire of the southeastern section of the State, the disease was very generally distributed in this year and to an extent previously unknown in that section.

Erysipelas in Howard County.—From Dr. G. M. B. Mangles, of Fayette, we learn that

Epidemic erysipelas made its appearance in Howard County in January of this year, prevailing chiefly in a district of about 10 miles in width by 18 or 20 in length, with scattered cases in other sections of the country. The affected district is a high ridge of rich arable land, superimposed on carboniferous limestone, and lying between the Bonne-Femme and Manitou Creeks. The bottoms on these creeks are from half a mile to one mile wide, and subject to inundation, in addition to which numerous shallow lakes are distributed over them. These bottoms are the selected localities of autumnal fever. The early part of January in this year was exceedingly cold; at the end of the month, when the disease was at its height, a thawing temperature prevailed. At the same period there was an unusual amount of simple inflammatory angina, and measles prevailed with unusual virulence, attacking adults as well as children. Several cases of this disease were presented in which the subjects were for the second time attacked.

In his communication, Dr. M. adduces an extended series of cases to prove the contagiousness of erysipelas, confining his remarks chiefly to this point. The treatment he found to be most successful was the quinine and antimony in combination, with the employment of an emeto-cathartic, or a simple cathartic in the beginning. The topical remedies found most useful were solutions of the chlorate of potash or nitrate of silver. In his paper, he advances the opinion that the disease simulates closely *diphtherite*, as described by Bretonneau, the only remarkable difference being the liability of the disease, as witnessed in Missouri, to the evolution of erythematous eruption on the face. The cases detailed by Dr. M. may be found in the September number of the *St. Louis Medical and Surgical Journal* for 1852, p. 392, to which we refer our readers.

In *Platte County.* In the January, 1853, number of the *New York Journal of Medicine* is found a report by R. T. P. Ridley, M. D., of Weston, Mo., of "Cases of erysipelas which occurred in Platte

County Missouri, in which there were marked evidences of the propagation of the disease by contagion." These cases occurred in January and February, 1852; for their details we refer to the journal above quoted. The connection of puerperal peritonitis with erysipelas is remarked on at the close of the report.

In *Jackson County.* From Dr. H. L. Hereford, of Westport, we learn that this disease occurred in that neighborhood in the winter of 1852. The first cases that appeared proved fatal. The affection first manifested itself in the throat, nor was it until from the third to the seventh day that the erythema was displayed upon the surface. It then diffused itself over the face and extended to the scalp. The symptoms are not detailed, further than by the expression that they were such as are ordinarily presented in epidemic erysipelatous fever or "black tongue." Dr. H. bled copiously in the outset of each attack, following this measure by the exhibition of tartarized antimony to tolerance. On the decline of the eruption, a supporting treatment, consisting of cinchona, quinine, or wine was adopted. Calomel, he states, was only used to combat cerebral complications. After the above treatment was adopted, the fatality of the disease was suspended. The diluted mineral acids were employed as topical applications to the throat; the solid nitrate of silver, applied so as to cauterize deeply, was found successful in aborting the external erythema.

Diseases of Gasconade County.

Dr. Aug. Nassee, of Hermann, informed us that:—

Angina with stomatitis prevailed epidemically in this county, confined chiefly to Lautre Island, and the bottom on the Gasconade River. Both adults and children were affected by it. The disease appears to have presented itself in the form of stomatitis ulcerosa, whitish round pustules on an inflamed base occurring beneath the tongue, or on the inner lining of the lips. When these pustules formed, the tissues of the internal cheeks, of the gums, palate and posterior fauces, were rapidly involved in the diseased action, and the Schneiderian membrane became engorged. Painful deglutition set in, together with swelling of the lower portion of the face, of the glands of the neck, profuse salivation and great fetor of the breath and secretions of the mouth and throat. Chilliness, followed by febrile reaction, was early manifested, and the secretions of the intestines were disordered. The affection of the mouth and throat

progressed, terminating by desquamation of the superficial tissues, leaving the submucous stricture of a deep red color. In the height of the eruption in the mouth, large erythematous patches, fleeting in continuance, were distributed over the body. The duration of the disease was from ten to twenty days. Dr. Nassee attributed the disease to dentition, inappropriate diet, exposure to humidity, and is disposed to view it as infectious in its distribution. The treatment adopted in the disease was saline laxatives, mucilaginous gargles followed by a gargle of bichloride of mercury gr. j, dissolved in distilled water f℥vj, and, in some cases, the lime-water mingled with infusion of sage, or the chlorine water. The autumnal periodic fevers prevalent in this section, in this year, were unusually malignant, being frequently complicated with convulsions or intractable diarrhœa. Since the occurrence of cholera, it is remarked that all diseases, even the most simple, are accompanied by diarrhœa and vomiting.

Diseases of Cooper County.

From Dr. C. Q. Chandler, we learn that measles prevailed for three months, during the spring and summer of this year, in this county, the general character of the cases being mild.

PERTUSSIS likewise prevailed as an epidemic, and frequently united with fatal complication of pulmonic and cerebral disease.

ERYSIPELAS prevailed in the southwestern section of this county and in the adjoining county of Moniteau, during the winter of 1851 and 1852. This disease, together with puerperal fever, raged in a most malignant and fatal form. The onus of disease in the erysipelatous epidemy expended itself on the brain, inducing death by coma. The general type of the cases was said to be typhoid; in some instances it was engrafted upon remittent fever. The mortality was very great, the subjects often perishing within 24 hours of the commencement of the attack.

Diseases of Andrew County.

VARIOLA.—From Dr. Wm. Burnett, of Savannah, we learn that this disease made its appearance in Savannah 22d January, 1852, and within the limits of three or four days from its first appearance some twenty persons in different families were affected with the contagion; some 55 persons, members of the same families in which

the disease first broke out, have had it. All had it in its modified form, save those unprotected by vaccination, 26 in number, 10 of whom had confluent and 16 distinct smallpox. Some ten or fifteen other persons had a fever of 3 or 4 days' duration, analogous to the initial fever of variola; we could attribute it to no other cause than variolous influence. Every grade of the disease was observable, from a simple fever without any eruption, to its most malignant form.

Causes.—How, or by whom, the disease was first introduced, we are unable to say, but it was supposed to be communicated by a physician who was treating a case some 12 miles from town, who, after returning, was frequently at church, a place where all had been who were first attacked by the disease, many of the number not having been elsewhere. The physician himself had varioloid, but not till after the lapse of some 3 or 4 days after his last visit to the church, which was 12 days before the first case of smallpox. Those last taking the disease, caught it from their own families. The period of incubation was from 14 to 17 days, supposing they caught the disease upon the introduction of the fever. There were many exposed, who had been previously vaccinated, or were vaccinated as soon as possible after their exposure to the contagion, who escaped entirely, some of the number not having been brought under the vaccine disease for 10 or 12 days after exposure; and vaccination, in a few instances, I thought, excited varioloid.

Mortality.—Nine persons died, 2 with cerebritis; 2 with pneumonia; 4 with malignant smallpox; and 1 from extreme exhaustion. The two who died of cerebritis, and one of pneumonia, died about the 8th or 9th day of the eruption, the malignant cases, about the 6th or 7th, the others between the 15th and 20th day. All save 3 had it in its confluent form.

Diseases of Buchanan County.

From Dr. A. Kerns, of Boyer's settlement, we learn that typhoid fever, which previously had been unknown as an epidemic, prevailed extensively throughout the county during the last quarter of the year. The previous summer and autumn had been comparatively healthy; the cases of malarious fever then prevalent having been mild, and yielded readily to treatment. The weather during the autumn was very variable, presenting sudden and frequent changes from warm to cold and from dry to wet, with

interludes of sleet and snow. These variations continued until the second week in December, when the temperature became uniformly cold, which continued until January opened, which was a moderate, pleasant winter month. To these frequent atmospheric vicissitudes is the epidemic attributed. The general course of symptoms presented in this epidemic corresponds with the description we have given of the disease as it exists in St. Louis, and the treatment adopted is the same as noticed when speaking upon this topic in that portion of our report.

The complications presented in this epidemic were pneumonia or bronchitis; these, however, were not common. Irritative cough, with profuse expectoration of tenacious mucus, attended the stage of convalescence, which was invariably protracted. Relapse or recurrence of the disease seldom occurred. No age, sex or race was exempt from its attacks, when exposed to its causes; frequently it visited the entire members of a household, and, hence, was commonly believed to be contagious. Among negroes, it was severe, intractable, and fatal. The attacks lasted from 18 to 35, and, in some instances, 60 days. Furuncle often attended the stage of convalescence. Sudamina, and rose-colored eruption, were not often noticed in the disease; hemorrhage from the bowels frequently supervened.

INFLUENZA, we learn, from the same correspondent, prevailed in that county during the months of January and February, subjecting to its attacks almost every age, sex and race. The symptoms, as described by Dr. Kerns, present no marked variation from those ordinarily presented in epidemic catarrh. The treatment adopted was expectant.

Diseases of Marion County.

In a communication from Dr. Banks, of Houston, we are informed that two epidemics appeared in this year in Marion, namely, pertussis and dysentery. The first made its appearance in the early part of the spring, and prevailed very generally throughout the northeastern section of the State. No unusual aberration from the ordinary symptoms of the disease was noticed in the epidemic. Its fatality was not great, being confined to infants, whose prospects of life were, aside from the disease, very promising. The fatal complications were pneumonia, hydrocephalus, dysentery and miasmatic fevers. The complicated cases yielded to none of the usual remedies. Late in the epidemic, Dr. B. resorted to the nitric acid

as recommended by Dr. Arnoldi, of Montreal, and, in six cases in which he tried it, it seems to have diminished the severity of the paroxysms and abbreviated the disorder.

The vernal rains in this year in the northeastern section of the State, were not as great as usual, and the summer months were marked by the prevalence of extreme drought. In midsummer, dysentery made its appearance, raging with much severity in a district about ten miles wide along the Mississippi, and extending west from the river about 40 miles. The disease travelled westward from the river, over this circuit. It differed from its predecessor of 1851, by assuming more of a bilio-adynamic type; excessive secretion of vitiated bile with a tendency to early prostration occurred in nearly every case. The disorder advanced insidiously; a few days of languor, malaise, anorexia, thirst, abdominal pain and diarrhœa, ushered in the severer stage; then distinct chill, followed by fever, marked the commencement of the latter. The febrile reaction was not intense, the extremities were cool, the abdomen was hot, the pulse was frequent without development of undue force, and exacerbation of the febrile heat was observable in the evening. Tenesmus and tormina were very distressing; dysuria was frequently their associate. The stomach was very irritable in every case; the alvine dejections presented almost every variety of alvine admixture—they were bilious, sero-bilious, muco-bilious, sanguineo-bilious, and muco-sanguine and bilious; pure mucus with blood alone, or pure blood seldom appeared; the redundant exudation or secretion was vitiated bile. The disorder was a bilious diarrhœa, complicated with colitis. When these dejections had continued from six to eight days, membranous shreds or bands and purulent matter were apparent in the discharges, and in some instances, intestinal entozoa were extruded. Prolapse of the rectum occurred in the young and old subjects; the mortality was greatest in the former class. The fatal cases generally terminated on or after the fourteenth day, rarely before the tenth day. One in every seven subjects died.

Treatment.—The most successful treatment in this epidemic was the mercurial and anodyne combined. Dr. Banks views opium as the most invaluable of these. The effect of these agents, at first, was to produce consistent dejections of vitiated bile, which irritated the rectum intensely, as they were discharged, but which were subsequently followed by diminution of the frequency of the dejections, and of the amount of mucus and blood. Opium, now given in full

doses, controlled the succeeding symptoms; as soon as the acute symptoms were subdued, alcoholic stimuli were resorted to, and the vegetable astringents were now available. In this stage of the disease, Dr. B. derived great advantage from the use of the Beeberine. Blisters were seemingly of no service, until the acute stage was over; the milder counter-irritants, and especially the warm anodyne fomentations, served a better purpose in the earlier stage. The irritability of stomach was best controlled by opium with trisnitrate of bismuth or with creasote.

Of the endemial epidemics, intermittent and remittent fevers have been the most prevalent in this year. Pneumonia has been common this winter, with a tendency to the ataxic character; bloodletting not being endured nor yet the contra-stimulant action of antimony. Stimulating expectorants and diaphoretics, with calomel and opium, have been the most efficient means of treating it.

REPORT ON THE YEAR 1853.

Prevalent Diseases of St. Louis.

Remarks on the year 1853. *Its mortality, seasons, &c.*

This year is remarkable, from the fact that it is the only one of the four to which our report is confined that is not commemorated by the presence of epidemic cholera. In observing the mortuary reports of the different seasons of this year, it will be noticed that their mortality, and, indeed, the mortality in every month and week of the year, varies greatly from that of the other years, and the maxima of mortality from all causes and from the principal diseases are attained at other times or dates than in the two years previous or in the succeeding year. The ordinary diseases, which prevailed in this year, were uninfluenced by the one great epidemic cause which pervaded the other years, and we find as a consequence that the ratio of mortality and the amount of disease were much diminished. Another point worthy of remark is the character of the meteorologic data in this year, which vary considerably from those of other years. January, October, November and December, present a mean barometrical elevation above the annual mean; March and September are below it. The lowest mean is presented in this as in the preceding year in the month of April. The mean for the year is among the highest recorded in St. Louis in seventeen years, and

is about equal to that of 1838, 1842, and 1845. The mean temperature of 1852 was lower than that of 1853; the temperature of January, 1853, was never down to zero, which is in contrast to the January of the preceding year, one of the coldest months in 21 years. June, 1853, was the warmest of the 12 months of the year, and the warmest June ever experienced in this section of the West. August was the next warmest month; whereas July, which is generally the hottest month of the year, was the coolest July known for many years. July, 1835, 1848 and 1849, presented a similar thermometric state. The highest range of the thermometer in 1853, occurred June 20th and 21st—the degree 100° being only equalled in seventeen preceding years in July, 1833, 1834, 1838, 1841, and in August, 1834. From June 10th and 15th, and again, from the 18th to the 22d, the temperature was extremely warm, being, every day, over 90° F., and for three successive days ranging between 75° at sunrise and 97° post meridian, with light southeasterly, southerly and southwesterly winds, but the air was clear and dry, and no very deleterious effects on the general health were noticed. Only thirteen deaths more occurred in these weeks than in the weeks previous.

Scarlet Fever.—Deaths by scarlet fever were reported in every month in 1852, and the prevalence of the disease, although limited, was greater throughout the year than in any one of several preceding years. It was not until November, however, that it gave any indication of becoming epidemic. The number of cases then increased, and the augmentation was more perceptible in December. The mortality by it amounted to 7 in November and 21 in December; the total for the year being 75.

In January, 1853, a greater dissemination of the disease was noticed, although its mortality was not much increased over that in the preceding month. In February, a marked increase in the number of cases and in their fatality was evident; in March and April the disease was distributed very generally through the city, and the number of deaths augmented over that of the month before. The disease had now reached its climax, and it prevailed with much severity for several weeks. From the current representations of the time, we believe the maximum of prevalence was in March; the greatest mortality by it occurred in the week ending the 28th of that month. In May, an evident reduction in the number attacked was observed, but in June, again, there was an increase, which we estimate as about equal to the amount of the disease in January.

In July, a diminution again prevailed; in August a further reduction took place; and for the remaining period of the year, the disease only manifested its influence by the presentation of occasional cases.

Compared with measles, as prevalent in the previous year, 1852, scarlet fever was, in 1853, more generally distributed than that disease. The number of cases of scarlet fever was greater, for the time this disease existed was longer than that during which measles prevailed, but, independently of this, the number of cases of the former, in each month of its prevalence, was in excess over that of measles. Taking the months of April and May, 1852, when the latter was at its height, to compare with March and April, 1853, when scarlatina was at its maximum, the amount of disease at the former period was the least. The number of mild cases of the former disease was comparatively greater, much greater than that of the latter, yet of the severer cases of the two diseases, we believe that those of scarlet fever that did not die in the forming stage, were, relatively to their number, the more manageable. The liability of different ages to either disease varied in the two epidemics. The infant under two years of age was more subject to measles than to scarlet fever; the former is, within our experience, oftener a disease of the infant subject, since the latter is, relatively, a disease of later years. Throwing out of view the cases of these diseases that occur before the age of two years, we find that, of those occurring after that age, the number of scarlet fever exceeds that of measles. This becomes very evident, if we compare the liability of ages after four years. There are few physicians who have not treated a greater number of cases of scarlet fever in subjects of from 5 to 10 years of age, than of measles, and the greater liability of the ages over ten years to scarlet fever than to measles is very marked. The statistics of mortality that we give of the two diseases, will perhaps show the fallacy or correctness of the above. The deduction we would advance from observation of epidemics of the two diseases, is that scarlet fever is more a disease of the years between the first dentition and puberty, whereas measles may be said to be a disease of the first five years of life. We are indeed inclined to limit still more the tendency of these diseases to attack particular ages, for we might confidently state, that whilst measles is a disease of the second, third and fourth years of life, scarlet fever is more limited to the fourth, fifth, sixth and seventh years, and the period

of the second dentition has, in our opinion, a tendency to increase the liability to this last disease.

In the gravity of the symptoms, this indication of scarlet fever was the severest we have witnessed in St. Louis. The proportion of cases of the simple or mild form being comparatively small. The general character of the disease corresponds with the descriptions given by writers of scarlatina anginosa, and when not fatal in the forming stage, presented an active type. With the exception of the virulent or convulsive form, to which we refer in a subsequent part of this report, the several stages of the disease were well marked and regular in their evolution. The precursory symptoms were displayed on the first and second days, the eruption usually at the end of the second or the beginning of the third day, at first on the face and neck, next on the chest and arms, and then over the body. The efflorescence began to fade on the fifth, and disappeared by the end of the seventh day, when the desquamation proceeded in the regular manner. The anginose symptoms were observable often in the first day; on the second, they became more marked, and continued severe, in cases that recovered, up to the sixth or seventh day. The angina presented the usual local symptoms; sense of pain in deglutition, swelling of the soft palate, palatine arches, uvula, tonsils, and base of the tongue, erythema of the fauces, grayish or yellowish pasty coating over the tongue, with its papillæ elongated and fiery red. The submaxillary and cervical glands were enlarged, the angle of the jaws, the neck and face swollen, the movements of the jaw and neck painful. There was profuse secretion of viscid mucus from the crypta of fauces, and other parts within the mouth, free distillation of acrid fluid from the nares, and, in some cases, exudation of a grayish-white lymph on the tonsils and posterior fauces. Notwithstanding the assertion of authorities to the contrary, we saw cases in which the exudative process extended to the larynx, the patients perishing on the sixth, seventh, and eighth days, with signs of membranous croup. In one case that we witnessed, death resulted from œdema of the glottis. In some cases, the air-passages were involved in the inflammation, the patient perishing from redundancy of secretion in the bronchiæ. Pleurisy was an occasional supervention, but the most frequent complication was meningitis. In the height of the angina and eruption, the fever was intense, the skin was burning and pungent, the pulse rapid and unequal. Increased frequency of the pulse, with heat, dryness, and roughness of the skin, persisted

for several days after the decline of the eruption, and when the general symptoms were subdued. Nocturnal exacerbation of febrile heat, and of nervous lesions, invariably occurred in the height of disease, persisting generally from the second or third to the sixth or seventh day. In some cases, we noticed on the surface a display of minute vesicles, preceding the evolution of the efflorescence. Desquamation of epithelium of the tongue, and other parts within the mouth, was observable on the fourth, fifth, or sixth day; desquamation of the cuticle began on the face about the fifth or sixth day. The frequency of pulse in the precursory and eruptive stages was the principal means of diagnosis; if it became very rapid, the case would prove severe; if the frequency were moderate, and not much increased on the appearance of the eruption, the case would end favorably. A fatal complication in some cases was abscess in the posterior or lateral parts of the fauces or pharynx, which, impinging on the larynx, produced death by apnœa. In one case, which occurred June 6, and in which vesicles preceded the general eruption, the symptoms progressed favorably, and recovery apparently was established. On the fifteenth, there supervened, within a few hours, great tumefaction of the cervical and submaxillary glands; the face became turgid, and, with the neck, œdematous; the fauces were pallid, but not swollen; the pulse was rapid and feeble; the skin cool. The desquamation had been free, the urine was scanty and turbid, and there was distressing orthopnœa. Free purging, with the use of the warm bath and camphorated cataplasms to the chest, subdued the symptoms. We saw no case of gangrenous angina in the disease.

In this epidemic, we noticed a greater proportion of cases fatal in their forming stage than in any epidemic that we have witnessed in St. Louis. This was also observed in the practice of other physicians in the city, from whom we sought information. The subjects would be suddenly attacked without any apparent previous malaise, vomiting being invariably the first symptom. This, occurring without an assignable cause, would create alarm, and induce the calling in of the physician. On examination, the extremities would be found cold; the pulse was unusually small, frequent, and irregular; in some, it might appear of full volume, but compressible and thrilling under slight depression; in all, increased frequency and irregularity were remarkable. Imperfect or disturbed vision presented in many of the cases. The eyes would be dull and heavy; the lids semi-apart; the patient listless; evi-

dently a tendency to coma existed thus early in the disease. The fauces would even now present an erythematous blush, with the tonsils turgid. The tongue was yet unaltered; in a few cases, however, the papillæ were salient, and the fauces erythematized. The face soon became turgid and swollen; in children who could describe their sensations, vertigo and dull pain in the head were noticed. The comatose tendency soon became more manifest, and some delirium occurred; in all, convulsions, more or less violent and prolonged, set in, with deeper coma following. In some, convulsions supervened very soon after the first vomiting. In the interval of the general convulsions, fleeting spasm of the facial muscles, jactitation, and subsultus were noticed. As disease advanced, the brain became more overpowered, paralysis assumed the place of convulsions, the mouth would be drawn to one side, the tongue semi-paralyzed, the power of deglutition lost, and the extremities on either side motionless. Previous to this, the conjunctiva became intensely injected, strabismus, with, at first, vibrating, and finally dilated pupils, occurred; and, in some instances, there was an unequal state of the pupils, one being larger than the other. The first general symptoms in the forming stage of these cases, were analogous to the cold stage of malignant fever, but evidences of an attempt at reaction in time were manifested. The system would seem to struggle, as it were, at reaction. The coldness of the surface would be temporarily succeeded by flushes of heat; these would subside, and alternations of coldness and flushing would recur for one, two, or three hours, when persistent reaction would be established. In the period of these alternations, or rather, as excitement attained ascendency, a limited display of efflorescence would be noticed, generally on the neck and chest, sometimes in the face, or thighs, and arms. This efflorescence, however, would be fleeting; it never fully and permanently appeared in the fatal cases. The system struggled under an attempted evolution of the erythema, but succumbed before it was fully evolved, death ensuing in from 12 to 18 hours from the appearance of the first symptom. The urine, in these cases, was very scanty, or wholly suppressed. The symptoms, in these cases, may have arisen from contact of the scarlatinized or poisoned blood, with the nervous centres; but, in all the cases examined by us, there was the marked tendency of the disease to localize its permanent effects on the neck and throat. The cause producing the angina involved in its operation the tissues adjacent to the fauces and pharynx; the tonsils, submaxillary, and cervical

glands, became tumid and painful to compression; there was pain on moving the lower jaw, which was referred to its articulation and to its muscles; the muscles of the neck were sore and painful on motion; the neck was maintained passive, as though to obviate the pain occasioned by its rotations, or by the flexion of the cervical spine; and there was pain at the back of the head and neck. The local inflammation, at first developed in the throat, involved the spinal theca, and the membranes of the base of the brain. Dr. Weber examined, *post mortem*, some of these fatal cases in which meningitis of the concavity of the brain, extending to the cervical portion of the spine, was developed.

In February, March, and April, we witnessed cases of scarlet fever, in which the fever was regularly periodic, one of them being that of the wife of a physician. February 15, she was taken with distinct chill, followed by febrile reaction, and attended with erythematous angina. On the 16th, the febrile paroxysm was lighter than on the preceding day, and the intermission was distinctly marked. On the 17th, at 12 M., a severe chill, with great pain in the spinal column and extremities, came on, and an erythematous blush suffused the left cheek; the intensity of the cold stage led the physician to administer three grains of opium, to excite reaction, this being a favorite practice with many in the malignant forms of intermittent fever, or in what is properly known as "congestive chills." Reaction was promptly induced by the remedy, the febrile paroxysm was shortened, the nervous lesions, which had been distressing in the first paroxysms, were, in this one, diminished, and the sweating stage was well developed. On the 18th, the febrile reaction was slight; the pulse was very rapid and feeble, a condition often noticed in the adult, after the exhibition of large doses of opium, in these forms of fever; the angina was much complained of, and small patches of efflorescence were distributed over the face. On the 19th, the eruption was diffused in large patches over the chest and arms; the face was more suffused than on the previous day. On the 20th, the eruption faded on the face and extremities, and became thickly spread on the trunk. On the 21st, the general symptoms and the angina were much improved; the pulse was still frequent, 126 per minute; the skin was warm, dry, and harsh; the efflorescence was fading, and desiccation commencing. The increased heat and rapid pulse prevailed until the 24th. This case seemed, in its early stage, to threaten much severity in its anginose and nervous complications; the symptoms were mani-

festly moderated by the opiate given on the 17th; except a mild, saline, diaphoretic mixture, and a gargle of nitrate of silver, no other remedies were given after the opiate. In some patients, the scarlatinous fever was developed in its usual form, and, on the seventh day from its commencement, the fever assumed the periodic type, presenting an aberration sometimes observed in our ordinary intermittent, in children, namely, the absence of a cold stage. Quinine was required for the control of the paroxysmal fever. These intermittent fevers, with scarlatina, occurred at a time when our vernal intermittents were prevailing in subjects not affected by scarlet fever.

Sequelæ.—The most common of these was anasarca. It was frequent, and in many cases severe, the infiltration of serum into the subcutaneous tissues being general, and, in a few instances, the peritoneal cavity shared in it. In connection with scarlatinous dropsy, we may here observe that its occurrence, even after attacks in which the fever has been mild, the eruption regular in its progress, and the angina trivial, may be anticipated where the decline of the eruption is not attended with free secretion of urine, and where, as is always the case, so far as we have observed, there is a large excess of the urate of ammonia in the urine. Close observation of such cases will detect œdema of the face and hands, on the eighth or tenth day, which will become troublesome if not attended to. We know of no disease in which the redundancy of this urate is so marked as in scarlet fever, and none in which it is so important as an indication for remedies. The destructive process that has been going on in the tissues of the surface, and the cessation of the depurative office of the cutaneous emunctories, reflect an undue amount of functional labor on the kidneys; the liability of these organs to inflammatory engorgement is then imminent, and if it be not attended to, the consequence will be a renal dropsy, that may prove severe and obstinate. In some cases under our notice, the presence of albumen in the urine, associated with excess of the urate, was noticed. The cause of the dropsy, or rather its pathology, might have been obscure but for the fact that the state of the urine satisfactorily explained it. Cupping over the loins, the use of the warm bath and purgatives in these cases, soon relieved all disorder. The dropsy more frequently succeeded the decline of mild cases of the fever than the severer cases, which is probably owing to two causes, namely, to the too early careless exposure of subjects that have had mild attacks to vicissitudes of

temperature and humidity, and to the active measures adopted in treating the severer cases, by which latter the tendency to renal engorgement was anticipated, or rather obviated. Chronic tonsillitis was a frequent result of this disease; in many cases it was associated with otitis. In the month of June, we witnessed in many young subjects a succession of furuncles, supervening immediately after the desquamation of scarlet fever.

As to the occurrence of scarlet fever twice in the same subject, we have to remark that it is far less frequently reported than that of rubeola. We have never witnessed such recurrence. Dr. S. G. Moses, of St. Louis, gives us details of two cases occurring under his observation, one of which was in a member of his own family.

Treatment.—Upon this topic we shall be brief, having nothing of interest to communicate. The mild or simple cases of the disease that occurred in this epidemic required no treatment; it was the complications that supervened, constituting the graver form of the disease, that demanded remedies. We have no experience to speak from as to general bleeding. Local depletion, in the height of the anginose symptoms on the third or fourth day, was found to be of avail; if much cerebral excitement existed, it was absolutely required. It is only in the early stage of the complications in this disease, that topical depletion is efficient. If deferred to the 5th or 6th day, it will prove valueless. Emetics were found useful in the forming stage, to facilitate the appearance of the eruption, and, in the later stages, to dislodge the redundant secretions of the throat. Where bronchitis supervened, they were much resorted to. Ipecacuanha was the agent usually preferred. Moderate purgation was in favor in the early stage, and in the more advanced, was directed by the circumstances of the case. After the first purgation and during the height of the eruption and angina, many resorted to repeated alterative doses of calomel, in combination with nauseants, to maintain the action of the cutaneous exhalants and a derivative fluxion by means of the intestines. The objection to the use of repeated mercurial doses, especially in strumous subjects of any age, and in all subjects near the period of the second dentition, is their liability to superinduce stomatitis, which in this form of fever is liable to be fearfully unmanageable, and to terminate in gangrenous destruction of the mouth. Saline cathartics are more eligible as derivatives in the disease than mercurials. Nauseants were found useful to abate excessive vascular excitement. The saline treatment met with favor from some practitioners, the chlorate of

potash, for example, or the acetate of ammonia combined with saline refrigerants, or the neutral draught with small proportions of antimony. Sedative diuretics were combined with other elements, and used as eliminating agents. Sponging the general surface with cold water, while the temperature of the extremities was maintained, found favor with many; others preferred tepid sponging, as less equivocal in its effects. The warm bath was much resorted to in the early stage, to invite the eruption to the surface, and the warm half bath as a derivative and calmative in the more advanced stage. The anginose combinations, when severe, were attacked by local depletion, when mild, by rubefacients and topical emollients. Where the tonsils were much enlarged, decided benefit resulted from scarifying them, an object readily effected in children if the attendant be determined to do it. Solutions or mixtures used simply as gargles were less efficient than when directly applied to the fauces by means of a sponge. The nitrate of silver solution was generally preferred for this purpose. Some practitioners employed the dilute acids, the pyroligneous, or hydrochloric as a topical application to the angina; some mingled chlorate of potash with them, and imagined it was beneficial. Chlorine water had its advocates both as a topical application to the throat and given as an antiseptic, or perhaps as an anti-zymotic. Blisters were employed after depletion to aid in the reduction of cerebral or pulmonic lesions. Applied to the anterior surface of the neck, as was done in few instances, their effects were injurious; intense local serous infiltration followed by gangrene resulted from them. On the decline of the eruption, the warm bath was generally employed to promote desquamation and restore the healthy functions of the skin. The most successful practice was the rational mode of treatment, which prepared the system for the severer stage of the disease, by proper purgation or the use of an emetic in the forming stage, and met the succeeding graver stage and its complications, as they arose, by a judicious and timely employment of topical bleeding and other arterial sedatives, and by derivatives, a course directed by a rational insight as to the disease and its tendencies, that held in view its self-limited character and its tendency to resolution at a stated period of its existence, that anticipated its complications, and, with a rational comprehension of their nature and tendencies, offered the firm hand of Art, without rashness, to aid, but not embarrass, the tottering steps of Nature. The sequelæ of the disease were treated on general principles. In the dropsy, the warm

bath, hydragogue cathartics, diaphoretics, and local depletion from the loins were most beneficial. The rapidly fatal or convulsive cases that we have referred to, were treated in some instances by free topical depletion, revellent baths, purgatives, &c.; in some instances, a milder, expectant course was adopted; stimulants and antispasmodics were likewise tried. Whatever treatment was selected for them, these cases proved hopeless from their inception.

In several cases, we witnessed the effects of the inunction of the surface with bacon. This remedy was applied by the mothers of patients on the first suspicion of the nature of the disease, or as the efflorescence first appeared. Having seen its marvellous effects noticed in medical publications, we patiently watched the progress of these cases. The anginose symptoms were displayed in their incipiency; the precursory fever was well marked, and the disease promised to be at least of moderate severity. The remedy evidently modified the eruption in all the cases, in three it aborted it, causing it to assume a buff color and disappear before the end of twenty-four hours. The anginose symptoms gave but little anxiety as the cases progressed. In five of the subjects, general œdema, particularly observable in the face and hands, occurred on the 6th, 7th or 8th day, which, however, readily subsided under the use of baths and cathartics.

The number of adults attacked by the disease was comparatively large, and in some cases it was severe and fatal. The mortuary table will show this.

Numerous instances have been brought to our notice to show that the fomites of the contagion of scarlet fever pervade premises long after their first localization. The cases quoted, however, are not absolutely conclusive as to this deduction, for, although in four of the most marked and convincing instances the patient was separated from contact with the infected, by sequestration in the country for three weeks, and only were attacked on the fifth day after their return to the house in town, where the previous case had occurred, the prevalence of the disease in the city at the time of their return would account for their infection.

Parotitis was more or less prevalent in this year during the months of February, March and April, confining its attacks chiefly to subjects of from 3 to 15 years of age.

Pertussis was somewhat more prevalent than parotitis, being distributed through the city during May and June. Cases occurred wherein parotitis supervened in the second stage of pertussis, in

subjects who had previously been attacked with scarlet fever. In such cases, delirium set in during the febrile stage of the parotitis, and the patients perished by the superinduction of convulsions. The fatal cases of pertussis, unaccompanied with parotitis, usually terminated by convulsions, these cases being limited to subjects under two and a half years of age.

SCARLET FEVER IN ST. LOUIS COUNTY.—The epidemic which pervaded the city, extended to every precinct of the county. In St. Ferdinand township, which is located between St. Louis township and the Missouri River, the number of cases in April, May and June was great. The general character of the disease in the county was much the same as in the city.

ERYTHEMATOUS ANGINA accompanying the prevalence of scarlet fever.—An unusual tendency was observed in subjects of all ages towards erythematous angina during the invasion of the scarlet fever epidemic. This was particularly observable in February, March and April. The angina did not confine its attacks to subjects who had been previously unaffected by scarlet fever, nor yet to such as were exposed in the vicinity of cases of that disease. The most numerous cases were in those from 14 to 25 years of age. Its symptoms were usually mild, being erythematous redness of the fauces with but slight tumidity of the tonsils; the follicles of this region were humid, and in a few instances presented exudative action with superficial abrasion, which gave an appearance of ulceration. Pain in deglutition, soreness of the muscles of the neck, some tumidity of the lymphatics beneath the angles of the jaw, with a grayish, pasty coating over the tongue and febricula, constituted the sum of the disease. Mild laxatives, and the application of nitrate of silver solution to the throat, were all that was required in its treatment. Many submitted to its invasion without resorting to medicines. In a few subjects who were predisposed to chronic tonsillitis, it gave rise to acute angina; in some of these laryngeal irritation would be for a time troublesome; in a few the disease was the precursor of severe, acute, or subacute laryngitis, or of true angina membranacea; the latter in some instances was fatal. The mortuary record shows that when scarlet fever prevailed, an increased number of deaths by angina and stomatitis existed.

Mortality.—This is presented in the succeeding tables. In order to compare the concurrent mortality of related diseases, we give, as in the previous year, the following:—

Tabular Statement of the Weekly Mortality from Scarlatina, Angina, Measles, and Pertussis in St. Louis, during the Epidemic of Scarlet Fever, during the year 1853. (The reports conclude with Sunday of each week.)

Week ending	Scarlet fever.	Angina.	Measles.	Pertussis.	Week ending	Scarlet fever.	Angina.	Measles.	Pertussis.
Jan. 9	2	1	...	...	May 8	5	1	...	1
" 16	13	...	...	...	" 15	4	...	...	...
" 23	5	2	...	...	" 22	7	...	...	...
" 30	10	1	...	...	" 29	9	1	...	3
Feb. 6	11	...	2	...	June 5	10	...	1	...
" 13	14	...	...	...	" 12	15	...	...	...
" 20	14	...	...	...	" 19	9	...	...	...
" 27	11	...	1	...	" 26	5	...	...	1
March 6	11	...	...	...	July 3	12	...	...	...
" 13	14	...	...	...	" 10	2	...	...	1
" 20	13	...	...	...	" 17	4	1	...	...
" 27	18	4	...	...	" 24	1	4	...	1
April 3	14	...	...	...	" 31	3	1	...	1
" 10	17	2	...	...	Aug. 7	5	2	2	2
" 17	13	...	...	...	" 14	...	1	...	3
" 24	11	...	...	...	" 21	3	2	...	...
May 1	11	2	1	...	" 28	1	...	1	1

During the remaining months of the year, the mortality by scarlet fever was 16; by angina 1; by measles 0; by pertussis 3. The mortality by parotitis was in February 1; in March 1; in April 1; in the other months of the year 0.

Tabular Statement of the Mortality by Scarlet Fever in St. Louis, 1853.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 1 y'r	3	2	4	1	2	4	4	6	1	..	5	3	..	1	..	1	..	..	..	..	..	..	1	..	20	18	38
1 to 2 y'rs	5	..	5	1	1	2	2	4	..	1	3	5	..	1	2	..	1	..	..	1	..	..	..	1	19	16	35
2 " 3 "	2	3	4	4	6	7	5	6	1	3	3	5	..	2	2	1	2	..	1	..	..	..	..	..	26	31	57
3 " 4 "	1	1	1	9	6	6	2	4	2	2	5	8	1	1	..	1	..	1	..	..	1	..	..	..	18	34	52
4 " 5 "	1	2	5	3	6	4	4	5	4	1	4	..	..	..	1	..	..	..	..	..	2	1	..	..	27	16	43
5 " 6 "	3	..	1	2	1	1	2	3	3	..	2	1	..	..	..	..	..	..	..	..	..	2	..	.	12	9	21
6 " 7 "	..	1	1	1	4	..	..	4	1	1	..	2	..	..	..	1	..	..	..	..	..	..	..	..	6	10	16
7 " 8 "	1	..	3	1	..	..	1	1	1	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	7	4	11
8 " 10 "	..	..	..	1	2	1	2	2	2	..	..	..	1	1	..	..	..	..	..	..	1	..	..	1	8	6	14
10 " 12 "	1	4	1	1	1	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	4	7	11
12 " 20 "	1	..	..	..	1	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	5
Over 20 "	..	..	..	1	4	..	1	..	..	..	2	1	1	1	..	..	..	..	..	..	..	..	..	..	8	3	11
Total	18	13	25	25	34	26	24	37	16	10	26	25	3	7	5	4	3	1	1	1	4	3	1	2	159	155	314

Of those subjects over 20 years of age, the two oldest were 80 and 85 years, respectively.

COMPARISONS OF THE MORTALITY.

	Per cent.
Ratio of deaths by scarlet fever to aggregate mortality of the year . .	8.09
" " " to entire mortality of 5 years of age and under	18.13
" " " in first half of the year to entire mortality of that period	16.13
" " " in first half of the year to entire mortality of 5 years and under	33.94
" " " to population of five years and under . .	1.84
" " " of subjects under 1 year to entire mortality by scarlet fever	12.1
" " " of subjects from 1 to 2 years "	11.11
" " " " " 2 to 3 " "	18.15
" " " " " 3 to 4 " "	16.56
" " " " " 4 to 5 " "	13.69
" " " " " 5 to 10 " "	19.74
" " " " " 10 to 20 " "	5.09
" " " " " 20 to 45 " "	3.50

The above calculations present results of much interest. They show that the mortality by the disease was great, and that it preponderated in subjects from two to four years of age. It would occupy too much space to analyze this mortality and remark on all its interesting relations. Having presented a tabular statement of it, which may be compared with other mortuary tables and with the statistics of population, we shall not pursue the analysis further, but leave it to be followed by the curious student, who may be disposed to the investigation of such matters.

INTESTINAL DISEASES.

DIARRHŒA, DYSENTERY and CHOLERA INFANTUM prevailed in this year to an extent much reduced below that of the two previous years. This is attributable to several causes, the most prominent among which was the entire absence of epidemic cholera, and the comparatively mild temperature of the month of July, together with the relative dryness of the summer season. The influence of these meteorologic causes in disease is the subject of remark in the interesting paper by Dr. Engelman, which will be found at the end of this report. The decrease of intestinal disease in this year is, in a measure, apparent in the weekly mortuary reports, which we shall attach to our report. We therefore confine ourselves to their publication, deeming it sufficient for what we have in view as to our present topic. The limits to which this report has already

extended, admonishes us to be as brief as possible; we shall therefore avoid, as much as we can, disquisition upon the topics we introduce. We may remark, before quitting our present topic, that, while the chief prevalence of diarrhœa, dysentery, and, of course, cholera infantum was in the months of April, May, June, July, August and September, the greatest mortality by diarrhœa occurred in September, October, November and December. The prevailing character of the disease in these last months may be inferred from the fact that of one hundred fatal cases, the deaths in 52 instances are reported in the Sexton's certificates as from chronic diarrhœa. Another fact of interest, which obtains also of other years, is that the mortality during the summer is made up of young subjects, whereas that of autumn and winter shows the deaths to have been principally among adults.

CHOLERA MORBUS.—To show the immunity from cholera that this year presented, we subjoin the report of deaths, stated in the mortuary registry of the city in the different months.

January. 1 male of 36 years, German; 1 female, 44 years, German; 1 female, 50 years, English; 1 male, 16 years, English; 1 male, 32 years, German; 1 female, 42 years, German; 1 male, 36 years, nativity not stated. Total, 7.

June. 1 male, 21 years, German.

July. 1 male, 5 years; 1 female, 16 years, German; 1 male, 3 years and 9 months. Total, 3.

August. 1 male, 60 years, German; 1 male, 32 years; 1 male, 36 years, Irish; 1 female, 65 years, Irish; 1 male, 39 years, German. Total, 5.

October. 1 female, 20 years, Irish; 1 female, 58 years. Total, 2.

November. 1 female, 30 years.

December. 1 female, 16 years, German; 1 male, 20 years, German; 1 male, 11 years, Irish; 1 male, 21 years, Irish; 1 male, 42 years; 1 male, 52 years; 1 male, 36 years, Irish; 1 female, 11 years; 1 male, 45 years, Irish. Total, 9.

Aggregate of the year, 28.

Those in June, July and August are reported under the head of cholera morbus; the others under that of cholera. The cases in January were the remnant of the cholera visitation of the preceding year; those in December, the *avant-couriers* of the attack of the succeeding year.

Tabular Statement of the Monthly Mortality by Diarrhœa in St. Louis, in 1853.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
1 year and under	1	..	..	..	1	..	2	..	..	..	2	2	4	2	..	4	1	..	1	2	..	1	..	..	12	11	23
1 to 2 yr's	..	1	..	..	..	..	..	..	..	..	2	2	2	2	..	1	2	3	3	1	..	..	1	..	10	10	20
2 " 3 "	..	1	..	..	..	1	1	1	..	..	2	2	..	1	1	..	1	..	..	..	..	..	..	2	5	8	13
3 " 5 "	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	1
5 " 10 "	..	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	..	1	..	..	1	1	..	4	3	7
10 " 20 "	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	..	2	..	1	..	3	..	8	1	9
20 " 30 "	4	..	2	..	1	..	1	1	4	..	1	1	..	1	2	2	7	..	4	1	7	..	1	3	34	9	43
30 " 40 "	1	..	..	..	..	..	..	..	..	..	2	..	1	..	1	..	5	1	4	..	7	1	2	..	21	4	25
40 " 50 "	..	..	..	..	..	..	1	..	..	..	1	..	1	..	1	..	4	2	2	..	4	..	..	1	14	3	17
50 and over	1	..	..	..	2	..	..	..	..	..	..	..	1	..	..	..	1	1	4	..	5	..	2	..	16	1	17
Total	7	3	2	..	4	1	6	3	4	1	10	7	9	6	5	7	24	7	22	4	24	3	10	6	125	50	175

Tabular Statement of the Monthly Mortality by Dysentery in St. Louis, in 1853.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
1 year and under	..	1	..	1	..	1	..	1	1	..	4	4	4	4	2	2	4	1	1	4	2	1	..	..	18	20	38
1 to 2 yrs.	..	2	..	3	..	..	..	..	1	2	2	2	2	2	4	3	6	4	5	2	..	..	2	2	22	22	44
2 " 3 "	1	1	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	3	3	6
3 " 5 "	..	..	..	..	..	..	..	..	1	1	1	..	..	..	1	1	1	..	2	..	..	1	..	1	6	4	10
5 " 10 "	..	1	..	..	..	..	..	..	1	..	..	..	1	..	..	..	2	..	1	..	..	..	..	1	5	2	7
10 " 20 "	..	..	..	..	..	..	..	1	..	..	..	2	1	..	..	..	1	..	..	..	1	..	1	..	4	3	7
20 " 30 "	1	..	..	1	1	..	..	2	..	2	..	1	2	..	3	..	4	1	1	1	2	1	1	..	15	9	24
30 " 40 "	..	1	..	..	..	..	1	..	1	..	1	..	1	1	3	1	5	1	2	2	1	..	..	1	15	7	22
40 " 50 "	..	..	2	..	..	..	1	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	6	..	6
50 and over	..	..	..	..	..	..	..	2	2	..	..	1	..	..	..	..	4	..	1	1	..	1	..	..	7	5	12
Unknown	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	2	1	3
Total	2	6	2	5	2	1	3	7	7	5	8	10	12	9	13	7	29	7	13	10	7	4	5	5	103	76	179

ANALYSIS OF THE MORTALITY BY DIARRHŒA.

	Per cent.
Ratio of mortality to aggregate annual mortality	4.5
" " " population	0.14
" " of subjects 5 years and under to aggregate annual mortality of that age	2.9
" " " " " to population "	0.33
" " " 5 to 10 years " "	0.05
" " " 10 to 20 " " "	0.04
" " of adult subjects to adult population	0.14

Assuming the same distribution of mortality between 40 and 50 years, as above in the instance of dysentery, we have

	Per cent.
Ratio of mortality of subjects of 20 to 45 years to population of same age	0.12
" " " of 45 years and over " "	0.37

ANALYSIS OF THE MORTALITY BY DYSENTERY.

	Per cent.
Ratio of mortality to aggregate mortality of the year	4.6
" " " population	0.15
" " of subjects 5 years and under, to aggregate mortality of the year at same age	4.99
" " of subjects 5 years and under, to population of same age	0.57
" " " 5 to 10 years " "	0.05
" " " 10 to 20 " " "	0.03
" " of adults to adult population " "	0.09

Assuming the mortality between 40 and 50 years of age to have been equally divided between 40 and 45, and 45 and 50 years, we have the following result:—

	Per cent.
Ratio of mortality of subjects of 20 to 45 years, to population of same age	0.07
" " " over 45 years " "	0.22

From the above it appears that, while dysentery is relatively more fatal in the early periods of life, diarrhœa, in comparison with dysentery, is more fatal at the later periods. The comparative reduction in the mortality by dysentery and diarrhœa in this year is seen, if we refer to the report of the previous year.

CHOLERA INFANTUM.—The reduced prevalence of this disease in this year was very marked, as might be readily inferred from the climatic circumstances of the summer. The following is its mortality:—

AGES.	MAY.		JUNE.		JULY.		AUGUST.		SEPTEMBER.		TOTAL.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 1 year.	1	1	18	...	18	10	8	6	4	8	64
1 to 2 years.	1	...	8	4	9	8	15	11	10	9	69
Over 2 "	...	...	1	1	2	...	1	1	1	1	8

The above total mortality, 141, is 3.62 per cent. of the entire mortality of the year, and 7.13 per cent. of the entire annual mortality of subjects under five years of age. Taking the mortality of the five months included in the above series, we find the disease 7.59 per cent. of the aggregate mortality of this period, and 13.94 per cent. of the mortality of subjects under 5 years of age. It would be interesting to detail the varying ratio of mortality by this and other diseases in each month of the year, and thus pointedly indicate the influence of meteorologic circumstances, or their changes, on the fatality of different diseases. This we shall attempt

at the end of our report, if there be sufficient time to elaborate the matter before we close it.

Summer Mortality in young Subjects from Causes not yet enumerated.

To present this topic in a complete form, we present the following table, showing the principal causes of this mortality in every week of six months of the year. It will enable the reader to trace out the influence of meteorologic changes in the mortality, as we shall give on another page the weekly meteorologic tables for the same months. It will be of interest to compare this table with the corresponding one in the subsequent year, a year strongly contrasted in its summer climatic circumstances with the present.

Statement of the Weekly Mortality during six months of 1853, *of subjects under five years of age, by the principal Infantile Diseases.*

Week ending	Weekly aggregate under 5 years.	Diarrhœa.	Dysentery.	Cholera infantum.	Marasmus.	Dentitional irritation.	Cerebro-spinal diseases.	Eruptive fever.	Acute respiratory diseases.	Consumption.
April 3	30	1	...	...	3	1	5	9	3	...
" 10	29	...	1	...	1	...	4	15	4	...
" 17	34	1	...	...	1	...	8	13	4	1
" 24	24	...	...	1	1	1	6	5	...	1
May 1	35	3	...	...	...	...	5	9	1	4
" 8	43	...	1	...	...	1	8	4	1	1
" 15	21	...	...	1	1	1	2	2	2	1
" 23	31	...	5	1	1	1	2	6	...	1
" 30	27	...	...	1	2	1	6	7	1	...
June 5	36	...	2	3	3	...	5	12	2	1
" 12	45	2	2	2	4	1	7	14	...	...
" 19	51	5	4	6	1	4	8	6	...	...
" 26	53	4	1	7	2	2	15	5	...	...
July 3	56	1	4	14	1	3	6	10	2	1
" 10	64	4	8	15	1	4	11	...	...	...
" 17	51	4	2	7	2	4	15	3	...	...
" 24	42	...	1	7	5	2	11	1	1	...
" 31	57	3	2	9	3	5	13	3	...	...
Aug. 7	56	2	3	9	7	2	7	6	...	...
" 14	66	1	5	12	4	7	15	...	1	2
" 21	63	1	4	13	1	2	14	...	1	4
" 28	47	2	2	8	5	5	8	1	...	...
Sept. 4	53	2	1	6	4	6	9	...	...	...
" 11	44	2	2	9	3	1	9	2	...	1
" 18	34	2	4	6	1	...	5	2	...	...
" 25	30	...	4	3	4	3	10	1	...	...
Oct. 2	43	3	4	1	4	5	6	...	...	1

Table showing the Mortality of Subjects of five years and under, from Congestion and Inflammation of the Brain (Convulsions, Meningitis, Hydrocephalus), in St. Louis, in 1853.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 1 yr.	4	3	12	5	6	6	4	7	1	3	15	13	16	13	20	6	16	9	19	6	10	6	7	5	130	82	212
1 to 2 yrs.	..	3	1	3	..	9	3	3	2	4	4	4	8	7	5	3	5	4	3	1	2	2	1	1	34	44	78
2 " 3 "	2	2	2	1	2	2	..	..	1	..	4	1	..	2	1	3	6	1	2	3	..	..	2	..	22	15	37
3 " 4 "	..	2	2	1	1	2	..	1	..	1	..	..	1	..	1	1	1	1	..	1	1	..	..	1	7	11	18
4 " 5 "	..	..	..	2	..	..	2	1	..	1	..	..	..	..	..	..	..	.	..	..	1	..	..	.	3	4	7
5 " 10 "	1	1	1	1	1	..	1	3	4	1	4	..	..	1	2	1	1	2	1	..	2	1	1	..	19	11	30
Total	7	11	18	13	10	19	10	15	8	10	27	18	25	23	29	14	29	16	25	11	16	9	11	7	215	167	382

FEVERS, CONTINUED AND PERIODIC.

We have already stated, in reference to this year, that it is the only one of the four years included in our report that is not marked by the prevalence of epidemic cholera in our State. The influence of the "cholera cause" upon the health of the population in the city, is very apparent if we compare the mortality of these several years, and especially the mortality by endemic fevers.

TYPHOID and TYPHUS FEVERS prevailed during the year, in a reduced degree compared with the two preceding years. They occurred among the same classes of population, and with the same variations as to season as observed in those years. Their chief period of prevalence is in the autumn and winter months; the time of their greatest fatality in this year, is reported to be July, August, and September, but we believe the maximum enumeration is made up by a portion of the mortality by endemic periodic fevers being included in the mortuary reports under the title typhoid fevers.

The PERIODIC FEVERS prevailed in an increased degree this year during July, August, September, and October. In the early period of this series of months, the remittent form predominated, as it does usually in midsummer. Towards the conclusion of August, and during the autumn, that form was superseded by the intermittent. The principal localities of the latter were the suburban portions of the city, especially the northern section and the vicinity of Chouteau's Lake.* The inception of fever, in the last named-locality,

* The locality of this lake is delineated in the small map found in Dr. Drake's work on the diseases of the interior valley of N. America. For a description of it, we must refer our readers to that work.

was more extensive than had before been experienced there, scarcely a house in the vicinity escaping the visitation. The cause of this was, evidently, the drainage of the lake in the early part of the season, a measure which had been attempted in the preceding year, but was suspended by the popular outcry raised against it. So long as the lake was fully inundated during the summer and autumn months, the banks around the deeper portions were comparatively little visited by fevers; its western extension near and beyond the city limits, which was shallow, was however annually subjected to intermittent and remittent. In this year the evil effects of exposing its entire bottom, were notably manifested. The outlet of the lake, which had been previously dammed, was now kept open so as not to accumulate a great depth of water, and its entire bed became a temporary shallow receiver of the rains of June, July, and August. This moist pit, the bottom of which is alluvion, composed largely of organic matter, under the fostering heat of summer became covered with rank vegetation, nurtured by the mistaken wisdom, which, in its efforts to reclaim the land from inundation, so directed circumstanees that the exact irrigation required for a luxuriant crop of moist vegetable growth was attained to a nicety. No amateur scientific gardening or agricultural chemistry could have effected more for the anxious husbandman, than this drainage of the lake accomplished for the physician. The vicinity became literally the hotbed of fever. The mansion of the proprietor of the land on the banks of the lake, which for thirteen years preceding had been noted for its immunity from fever, became uninhabitable, nearly the entire family being attacked with malarious fever. In other houses in the neighborhood, the same effects resulted. We had, with other physicians, the opportunity of remarking the effects of the drainage, and of comparing its influence on the health of the locality in contrast to previous years, when the bottom of the lake was fully submerged. There was but one opinion entertained when these circumstances were fresh upon the minds of observers, namely, that the bed of the lake, entirely inundated or completely reclaimed from water in the summer and autumn months, was little obnoxious to the charge of being a source of febrile miasmata, compared with the irrigated state in the summer of 1853. The effect of thorough drainage and desiccation of its surface by intense solar heat, in a year of excessive drought, was manifested in the succeeding year, 1854, during the

summer and autumn of which but little miasmatic fever was observed in this or other localities of the city.

YELLOW FEVER.—It is to be noted that cases of yellow fever, originating in the city, were reported in this year, during August and September, at the time the fever prevailed extensively and fatally in New Orleans. In every year of an epidemic of the fever in the South, deaths by it are reported in the mortuary tables of St. Louis, these being of subjects attacked in the steamboats on their way up the Mississippi, and interred in the cemeteries here. The cases to which we refer in this year, however, were of residents who had not been out of the city for some time previous to being attacked. They presented the same symptoms and pathology as are noticed of the disease in the South. The causation of these local cases was the subject of discussion in the Medical Society of St. Louis at the time of their occurrence, but nothing satisfactory upon the topic was elicited; the one fact was proved, namely, that they were true cases of yellow fever, originating in the city. The cases reported to the Medical Society, were two by Drs. Barnes and Christopher at the Society meeting, Sept. 2d; both had black vomit. On Monday, Sept. 4, Dr. Linton reported two cases in his practice, both with black vomit and yellowness of surface. At the meeting of the Society, September 24th, Dr. A. Marshall reported one case, Dr. McPheeters another, Dr. Boislinière another, the last, a remittent fever, supervening one week after the suspension of intermittent fever, and terminating with yellow skin and adnata and black vomit. Dr. G. Engelman reported two cases, the subjects of which had primarily labored under tertian intermittent, and, a week after, were attacked with bloody discharges, and died comatose. Dr. Linton related an additional case presented in his practice, at the meeting of October 1st. Dr. Papin reported a case commencing as intermittent, and terminating with black vomit. These are the only details that we can obtain of cases originating in the city, though from notes on the subject, recorded at that time, we believe the entire number of cases originating in the city was reported by different physicians to be thirteen. The other cases reported in the mortuary lists, were of subjects in whom the disease originated on the Lower Mississippi, and who were brought here for interment.

Mortality by Continued and Periodic Fevers.—This is presented in the following tables:—

Tabular Statement of the Monthly Mortality by Typhus Fever in St. Louis, in 1853.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
5 years and under	1	1	..	..	..	1	..	..	..	..	..	1	..	1	..	1	..	..	..	1	..	..	..	..	1	6	7
5 to 10 yrs.	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1	2
10 " 20 "	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	1	..	..	..	..	2	3	5
20 " 30 "	..	1	..	..	2	1	2	1	..	..	..	..	1	..	..	..	2	..	..	..	2	..	..	..	9	3	12
30 " 40 "	..	1	..	1	1	..	1	..	..	..	..	..	1	..	..	1	2	..	2	1	..	..	..	1	7	5	12
40 " 50 "	..	..	..	..	2	1	1	..	..	..	..	..	1	..	1	..	..	..	1	..	..	..	..	..	6	1	7
50 " 60 "	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	2	2	4
60 and over	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1
Total	2	3	..	1	5	4	5	1	1	..	..	1	4	1	3	2	4	3	3	4	2	..	..	1	29	21	50

Younger subjects above reported, 1 of one year and 8 months; 1 of 2 years; 1 of 3 years; 3 between 3 and 4 years.

Statement of the Mortality by Typhoid Fever in St. Louis, in 1853.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
5 years and under	3	1	..	1	..	2	..	1	..	..	..	..	..	..	1	1	..	..	..	2	..	..	1	..	5	8	13
5 to 10 yrs.	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	3	4
10 " 20 "	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	2	3	1	1	2	..	..	..	..	6	6	12
20 " 30 "	2	..	..	3	..	..	2	..	4	1	1	..	6	1	2	3	6	1	6	..	2	2	3	2	34	13	47
30 " 40 "	..	..	1	1	1	..	..	1	1	1	2	..	..	1	1	1	7	..	2	..	..	..	1	..	16	5	21
40 " 50 "	1	..	1	..	1	..	..	..	..	..	..	..	5	..	2	..	4	1	1	1	1	..	..	..	16	2	18
50 " 60 "	..	..	..	..	1	..	..	1	..	..	..	..	2	..	..	..	1	..	1	2	..	..	2	..	7	3	10
60 and over	..	..	..	..	..	..	1	..	..	..	..	..	..	1	2	..	..	..	1	..	..	..	..	..	4	1	5
Adults, age unknown	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	4	..	1	..	..	..	5	..	5
Total	7	2	3	5	3	3	3	3	5	2	3	..	13	4	9	7	21	3	16	7	4	3	7	2	94	41	135

Youngest subjects above reported, 1 of 1 year and 3 months; 1 of 2 years; 3 of 2½ years.

Table of the Mortality by Bilious Fever in St. Louis, in 1853.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
5 years and under	..	..	..	..	..	..	..	..	..	1	..	..	1	1	2	..	3	..	..	1	2	1	..	..	8	4	12
5 to 10 y'rs	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	2	1	..	1	1	..	..	..	6	2	8
10 " 20 "	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	2	2	..	1	..	..	..	..	4	5	9
20 " 30 "	..	..	..	..	..	..	..	..	..	..	1	..	2	1	1	..	11	3	2	..	..	..	..	1	17	5	22
30 " 50 "	..	..	..	..	..	..	1	1	..	2	1	..	..	2	3	..	9	5	1	1	..	1	..	1	15	13	28
50 and over	..	..	..	..	1	..	..	..	..	..	1	..	1	..	1	2	3	4	2	..	..	..	..	..	9	6	15
Total	1	..	..	..	1	..	1	1	..	3	4	..	5	5	9	3	30	15	5	4	3	2	..	2	59	35	94

Table of the Mortality by Intermittent Fever in St. Louis, in 1853.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
5 years and under	..	..	..	..	..	..	..	1	..	..	1	1	..	..	1	2	..	2	1	3	..	..	1	1	4	10	14
5 to 10 yrs.	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	1	1	..	..	..	..	..	..	1	1	2
10 " 20 "	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
20 " 30 "	..	..	1	..	..	..	1	1	1	..	..	..	2	..	2	..	8	..	2	..	..	..	2	..	19	1	20
30 " 50 "	..	..	..	..	..	..	1	..	..	..	..	..	1	..	3	1	..	1	2	..	..	..	1	..	8	2	10
50 and over	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	1	3	2	..	..	..	..	3	6	9
	..	..	1	..	..	..	2	2	1	1	2	1	3	2	6	3	9	5	8	5	..	..	4	1	36	20	56
																			Age and sex unknown								2
																									Total		58

Table of the reported Mortality by "Congestive Fever" in St. Louis, in 1853.

AGES.	JAN.		FEB.		MAR.		AP'L.		MAY.		JUNE.		JULY.		AUG.		SEPT.		OCT.		NOV.		DEC.		TOTAL.		AGGREGATE BOTH SEXES.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
5 years and under	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	1	..	..	..	..	..	..	..	4	4
5 to 10 yrs.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	3	3
10 " 20 "	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	1	2	3
20 " 30 "	..	..	1	..	..	1	..	..	..	1	..	..	3	1	..	..	5	1	..	..	..	..	..	..	9	4	13
30 " 50 "	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	2	1	..	..	..	..	1	..	5	2	7
50 and over	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	3	..	3
Total	1	..	1	..	..	1	..	..	..	1	2	..	3	1	1	5	9	6	..	1	..	..	1	..	18	15	33

Nativity of the Subjects dying by Bilious Fever.—Germans, 31; Irish, 31; not stated, 23; Italian, 1; English, 3; French, 1; Swiss, 3.

Youngest Subjects dying of Bilious Fever.—1 male, of seven months, in July; 1 female, of eleven months, in July; 1 male, of eleven months, in September; 1 male, of one year, in September; 1 French male, of one year, in August; 1 male, of one year one month, in September; 1 Swiss female, of one year one month, in May. Oldest subject, 1 Irish male, of ninety years, in July.

Nativity of Subjects dying of Intermittent Fever.—Irish, 21; Germans, 10; English, 2; not stated, 23; Negroes, 2.

Youngest Subjects dying of Intermittent.—Female, of three months, in September; female, of three months, in October; female, of six months, in October; female, of seven months, in October. Oldest subjects dying, 2 males, of seventy-one and seventy-two respectively; 1 female, of seventy-three years, all in October.

Nativity of Subjects dying of Congestive Fever.—Irish, 13; Germans, 5; Welsh, 1; not stated, 14.

Youngest Subjects dying of Congestive Fever.—1 female, of two

years, in September; 1 female, two years and one month, in June. Oldest subject, 1 male, in January.

REPORT OF THE WEEKLY INTERMENTS OF YELLOW FEVER IN ST. LOUIS, 1853.

Week ending							Total.
July 29	Female	of 20	years	of age			1
Aug. 7	Male	" 50	"	"	F. of 51,	M. of 35,	3
" 14	"	" 35	"	"	F. " 18,	F. " 24,	3
" 28	"	" 24	"	"	M. " 42,	M. " 52,	3
Sept. 4	"	" 34	"	"	M. " 29,	M. " 22, M. of 19	5
	"	" 21	"	"			
" 11	"	" 54	"	"	M. " 28,	M. " 30, M. " 59	6
	"	" 28	"	"	M. " 24.		
" 18	"	" 28	"	"	M. " 21,	M. " 44, M. " 28	9
	"	" 33	"	"	M. " 26,	M. " 42, M. " 30	
	"	" 24	"	"			
" 25	"	" 26	"	"			1
Oct. 2	"	" 24	"	"			1
							32

Nativity of above.—Irish, 10; Germans, 9; English, 2; Canadian, 1; Slave, 1; not stated, 10.

Diseases in the State beyond the limits of St. Louis County.

The communications we received from distant counties in this year, relating to the prevalent diseases, are brief, and barren of interest. One fact is prominently set forth in all, namely, the unusually extensive prevalence of climatic fevers, the remittent and intermittent. The one cause is usually brought forward to account for this, namely, the prevalence of late vernal and summer rains. We were impressed, on reading these communications, with the proofs they afforded of the correctness of the views advanced by Dr. Engelman, of St. Louis, in the paper on the Meteorologic Causes of our Climatic Fevers, which we append to this report.

Typhoid fever raged for several weeks in December, 1852, and January, 1853, in Jackson, Cape Girardeau County and its neighborhood, the locality which had been so scourged with cholera in the preceding summer.

We shall dismiss this portion of our subject with the above general statement, to take up the report on the prevalent diseases of 1854, and close our general report with that year.

Weekly Meteorological Table for St. Louis, from April 1 *to October* 2, 1853. From observations by GEORGE ENGELMAN, M. D.

1853. WEEK FROM	BAROMETER—CORRECTED FOR TEMPERATURE. IN ENGLISH MEASURE.						
	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Lowest.	Highest.
Mar. 28 to April 8	29.409	29.427	29.352	29.361	29.387	28.970	29.651
April 4 to " 10	29.460	29.471	29.424	29.488	29.461	29.095	29.776
" 11 to " 17	29.475	29.481	29.409	29.442	29.452	29.102	29.751
" 18 to " 24	29.262	29.272	29.204	29.268	29.251	28.960	29.639
" 25 to May 1	29.492	29.505	29.451	29.324	29.448	29.278	29.651
May 2 to " 8	29.294	29.317	29.274	29.276	29.290	29.025	29.481
" 9 to " 15	29.445	29.470	29.430	29.450	29.449	29.193	29.638
" 16 to " 22	29.511	29.514	29.456	29.483	29.491	29.101	29.897
" 23 to " 29	29.542	29.558	29.499	29.510	29.526	29.213	29.688
" 30 to June 5	29.432	29.453	29.404	29.434	29.431	29.250	29.567
June 6 to " 12	29.500	29.522	29.478	29.496	29.499	29.355	29.620
" 13 to " 19	29.516	29.542	29.465	29.471	29.498	29.353	29.678
" 20 to " 26	29.490	29.502	29.433	29.447	29.468	29.194	29.714
" 27 to July 3	29.410	29.436	29.352	29.395	29.398	29.217	29.489
July 4 to " 10	29.535	29.551	29.480	29.510	29.519	29.386	29.616
" 11 to " 17	29.488	29.501	29.437	29.461	29.472	29.342	29.586
" 18 to " 24	29.468	29.469	29.432	29.447	29.454	29.260	29.562
" 25 to " 31	29.525	29.554	29.503	29.523	29.526	29.325	29.620
Aug. 1 to Aug. 7	29.397	29.410	29.366	29.389	29.390	29.268	29.523
" 8 to " 14	29.473	29.490	29.427	29.436	29.456	29.345	29.549
" 15 to " 21	29.374	29.381	29.327	29.357	29.360	29.273	29.424
" 22 to " 28	29.513	29.534	29.484	29.507	29.509	29.340	29.735
" 29 to Sept. 4	29.468	29.475	29.398	29.420	29.440	29.304	29.612
Sept. 5 to " 11	29.532	29.551	29.499	29.536	29.529	29.362	29.667
" 12 to " 18	29.328	29.306	29.272	29.301	29.302	29.140	29.693
" 19 to " 25	29.573	29.598	29.537	29.557	29.566	29.440	29.704
" 26 to Oct. 2	29.555	29.571	29.516	29.540	29.545	29.408	29.669

Weekly Meteorological Table for St. Louis—Continued.

1853. WEEK FROM	OPEN AIR THERMOMETER. FAHRENHEIT.							CLEARNESS OF SKY.					NO. OF DAYS.		
	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Lowest.	Highest.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Fair.	Variable.	Overclouded.
Mar. 28 to April 3	44.5	50.9	62.7	51.1	52.3	31.5	81.0	5.4	4.0	3.9	5.7	4.7	3	2	2
April 4 to " 10	42.1	52.2	65.2	50.6	52.5	37.0	77.0	7.7	9.6	6.9	7.4	7.9	4	3	
" 11 to " 17	48.6	56.1	66.4	54.1	56.3	37.5	77.0	3.6	3.6	3.4	3.9	3.6	1	5	1
" 18 to " 24	54.1	65.4	70.7	54.4	61.1	42.0	81.5	6.3	6.7	5.4	3.3	5.4	2	5	
" 25 to May 1	50.0	61.8	70.9	59.0	60.4	39.0	82.0	4.7	4.1	4.3	4.1	4.3	2	5	
May 2 to " 8	54.9	60.2	66.3	57.6	59.7	46.0	71.0	2.7	1.6	2.1	3.4	2.4	1	4	2
" 9 to " 15	51.9	63.1	72.1	59.1	61.5	41.0	86.0	5.4	6.1	6.9	6.7	6.3	4	3	
" 16 to " 22	57.4	71.4	77.4	61.5	66.9	43.0	91.0	8.0	6.4	7.1	6.1	6.9	3	4	
" 23 to " 29	51.7	67.0	75.1	60.7	63.6	47.0	83.0	6.3	7.6	5.6	8.6	7.0	3	4	
" 30 to June 5	65.7	78.4	86.4	69.3	74.9	62.0	92.0	7.3	7.9	7.9	8.0	7.8	3	4	
June 6 to " 12	64.4	79.4	85.4	71.2	75.1	54.0	94.5	8.1	7.9	6.4	9.0	7.8	4	3	
" 13 to " 19	68.6	83.6	91.2	76.1	79.9	62.5	96.0	9.9	9.3	8.4	9.9	9.4	6	1	
" 20 to " 26	67.9	80.4	87.1	72.2	76.9	55.5	97.0	8.0	7.9	7.4	7.9	7.8	4	3	
" 27 to July 3	73.1	84.1	89.0	78.4	81.1	71.5	95.0	5.9	7.6	6.3	7.3	6.8	3	4	
July 4 to " 10	70.1	81.6	89.3	76.6	79.4	66.0	95.0	6.6	8.3	8.1	8.1	7.8	5	2	
" 11 to " 17	68.5	73.9	83.5	74.1	75.0	62.0	93.0	5.1	4.9	6.9	7.7	6.1	2	5	
" 18 to " 24	66.6	75.6	81.8	71.4	73.8	59.5	86.0	4.6	5.1	4.9	3.9	4.6	3	4	
" 25 to " 31	61.4	72.9	78.6	68.4	70.3	56.0	85.0	6.0	5.4	6.9	7.0	6.3	2	5	
Aug. 1 to Aug. 7	69.4	78.9	84.4	74.6	76.8	66.5	90.0	4.4	6.4	4.4	7.7	5.7	3	4	
" 8 to " 14	74.9	85.4	91.6	80.5	83.1	70.0	95.0	9.3	9.3	7.1	7.1	8.2	5	2	
" 15 to " 21	69.1	75.3	83.3	73.4	75.3	59.0	90.0	6.3	5.3	6.0	6.0	5.9	3	3	1
" 22 to " 28	63.4	69.9	77.1	67.4	69.4	53.0	85.0	6.3	5.4	6.4	7.1	6.3	4	3	
" 29 to Sept. 4	66.9	77.6	87.1	73.6	76.1	53.0	90.0	6.9	7.9	7.9	9.3	8.0	4	3	
Sept. 5 to " 11	64.8	70.4	79.1	68.6	70.7	58.0	86.0	6.3	7.3	7.7	5.7	6.7	4	3	
" 12 to " 18	68.5	77.4	82.9	73.0	75.4	62.0	89.5	7.0	5.9	3.9	6.4	5.8	2	5	
" 19 to " 25	52.2	62.3	73.6	58.9	61.7	42.0	82.0	8.6	8.4	9.0	10.0	9.0	5	2	
" 26 to Oct. 2	57.1	62.5	68.4	60.4	62.1	46.5	81.0	4.3	4.4	3.9	5.6	4.5	3	1	3

Weekly Meteorological Table for St. Louis—Continued.

1852. WEEK FROM	RAIN. Days.	RAIN. Hours.	RAIN. Quantity.	THUNDER-STORMS.	WINDS DURING WEEK.[1]
Mar. 28 to April 3	2	8½	0.72	2	S. 2 3, S.W. 2, N.W. 2 3, N.E. 2, N.W. 3.
April 3 to " 10				1	N.W. 3, S.W. 3, W. 4 3 2, S.E. 3, N.W. 2, N.E. 2.
" 11 to " 17	3	21	0.57	2	N.E. 2, S.E. 2, S.W. 2, N.E. 3, N.W. 2, W. 3.
" 18 to " 24	3	5¾	1.23	3	S.E. 3, N.W. 2, N.E. 2, S.E. 2 4, W. 2, S.E. 3, W. 3.
" 25 to May 1	1	4	0.72	2	N.W. 3 2, S.E. 2, W. 2, N.E. 2, S.E. 2.
May 2 to " 8	4	43½	3.47	1	S.E. 2, N.E. 3, E. 2, W. 3, N. 2, W. 2 3.
" 9 to " 15	1	1	0.07	1	W. 2 3, S. 4, N.E. 3 2, S.E. 2, S. 3.
" 16 to " 22	1	¼	0.03	1	S.E. 3, S.W. 3, W. 4, N.W. 3, S.W. 2, S. 2.
" 23 to " 29	1	¾	0.07	1	N.W. 3, N.E. 2, W. 2, S.W. 2, S. 4 2.
" 30 to June 5	2	4	0.71	3	N.W. 2, E. 2, S.E. 2, S.W. 2, S.E. 2, S. 3 2.
June 6 to " 12	1	¼	0.01	2	S.W. 2 3, N.W. 3, S.E. 2, S.W. 3 2, S.E. 2.
" 13 to " 19					S.E. 2, S.W. 3, W. 3, N.W. 3, S.E. 2, S. 2.
" 20 to " 26	1	8	2.36	1	S. 2 3, S.W. 4, W. 3 2, S.E. 2.
" 27 to July 3	2	1½	0.20	2	S.W. 3 2, S. 3, S.W. 2, N.E. 2, S.E. 2 3, N.E. 2.
July 4 to " 10	1	½	0.29	1	N.E. 2, N.W. 3, N.E. 2, S.E. 2, N.W. 2, S.W. 2.
" 11 to " 17	1	9	2.08	1	N.E. 3 2, S.E. 2, S.W. 2, N.W. 3, E. 2.
" 18 to " 24	3	9½	1.47	2	N.E. 2 3, E. 2, S.E. 2.
" 25 to " 31	1	2	0.21		W. 4 3, N.W. 3, S.E. 2, N.W. 3, S. 2.
Aug. 1 to Aug. 7	3	2¾	2.29	3	S.W. 2, W. 4, S. 2, W. 3, N.W. 3, N.E. 2.
" 8 to " 14					S.E. 2, S.W. 2, S. 2, W. 3 4.
" 15 to " 21	3	5¼	1.94	3	N.W. 3, N. 3, N.E. 2, E. 2, S.E. 3.
" 22 to " 28	1	3	0.63	2	E. 2, S.E. 2, W. 3, N.W. 2 3, N. 3, N.E. 2.
" 29 to Sept. 4	1	1	0.62	2	S.E. 2, S.W. 2, S.E. 2, N.E. 3.
Sept. 5 to " 11	2	5	2.04	1	E. 2, S.W. 3, N.E. 2, N. 3, N.E. 2.
" 12 to " 18	2	9½	1.46	2	S.E. 2, W. 2, S.E. 2, S. 2 3.
" 19 to " 25	1	½	0.02		S.W. 2, W. 3, N.W. 4 2, S.W. 2, S.E. 2 3.
" 26 to Oct. 2	2	19	1.15		S.E. 2, S.W. 2, N.W. 2, S.E. 2, W. 2 3.

[1] For explanatory remarks, *vide* tables for 1854.

Weekly Mortuary Reports in St. Louis from April 1 *to October*, 1853.

Week ending Sunday	Weekly aggregate of all ages.	Total of 5 years and under.	Total of diarrhœa.	Total of dysentery.	Total of cholera infantum.	Total of periodic fevers.	Total of continued fevers.
April 3	61	32	1	1	...	1	4
" 10	69	29	2	4	...	1	5
" 17	83	34	3	2	...	2	1
" 24	64	24	2	2	1	2	3
May 1	68	35	1	4	...	2	2
" 8	74	43	1	2	...	2	4
" 15	42	21	...	1	1	2	2
" 22	63	31	2	8	1	1	1
" 29	49	27	2	1	1	2	1
June 5	57	36	1	2	2	...	1
" 12	70	45	4	3	2	5	1
" 19	83	51	5	5	6	1	1
" 26	77	53	5	1	7	3	1
July 3	81	56	2	7	14	1	4
" 10	97	64	6	9	15	7	4
" 17	80	51	4	4	7	2	2
" 24	68	42	2	4	7	1	4
" 31	106	57	3	4	9	8	8
Aug. 7	92	56	2	3	9	5	8
" 14	137	66	4	6	12	10	5
" 21	107	63	1	5	13	9	5
" 28	75	47	4	4	8	4	3
Sept. 4	115	53	4	4	6	24	11
" 11	121	44	6	6	9	20	10
" 18	97	34	7	9	6	13	4
" 25	75	30	6	5	3	11	5
Oct. 2	111	43	8	12	1	9	5

City Hospital Report.

TYPHOID FEVER, 1853.

T. Y. BANNISTER, M. D., *Attending Physician.*

SEX.	AGE.	NO. OF DAYS IN HOSPITAL.	RESULT.
Male,	19,	22,	Discharged.
"	14,	25,	"
Female,	17,	20,	"
"	33,	45,	"
"	13,	20,	"
"	14,	19,	"
"	11,	1,	Died.
"	10,	3,	"
Male,	27,	15,	Discharged.
"	30,	18,	"
"	22,	18,	"
Female,	12,	23,	"
Male,	18,	28,	"
"	32,	22,	"
"	16,	18,	"
"	24,	30,	"
"	45,	26,	"
"	37,	18,	"
"	60,	5,	Died.
"	39,	14,	Discharged.
Female,	66,	5,	Died.
Male,	36,	18,	Discharged.
"	44,	12,	"
"	19,	14,	"
"	21,	26,	"
"	45,	25,	"
"	33,	7,	"
"	21,	3,	Died.
"	28,	8,	"
"	48,	6,	Discharged.
"	30,	18,	"
"	40,	20,	"
"	28,	23,	Died.
"	26,	19,	Discharged.
"	48,	3,	Died.
"	28,	26,	Discharged.
"	22,	9,	"
"	15,	13,	"
"	56,	15,	Died.
"	22,	11,	Discharged.
Female,	23,	12,	"

SEX.	AGE.	NO. OF DAYS IN HOSPITAL.	RESULT.
Male,	24,	12,	Died.
"	28,	4,	"
"	40,	10,	"
"	20,	(1 hour,)	"
"	19,	17,	Discharged.
"	20,	20,	"
"	31,	10,	"
"	22,	9,	"
"	20,	13,	"
"	20,	11,	"
"	45,	(1 hour,)	Died.
"	22,	5,	Discharged.
"	35,	25,	Died.
"	20,	21,	Discharged.
"	37,	13.	"
"	17,	13,	"
"	17,	18,	"
"	9,	17,	"
"	22,	26,	"
"	31,	11,	"
"	33,	15,	"
"	45,	15,	Died.
Female,	20,	17,	Discharged.
Male,	23,	9,	Died.
"	23,	4,	"
"	22,	2,	"
"	33,	15,	"
"	21,	16,	Discharged.
"	24,	16,	Died.
"	30,	3,	"
"	19,	17,	Discharged.
Female,	25,	26,	"
Male,	19,	27,	"
"	19,	17,	"
"	24,	23,	"

General Report of the Cases of Disease among the Emigrants landed from Steamboats at Quarantine Island, St. Louis, 1853. By F. P. LEAVENWORTH, M. D., Quarantine Physician.

Nativity of subjects.	Sex.	Age.	Date of arrival.	Date of discharge.	Form of disease.	RESULT AND REMARKS.
Kentucky	M.	22	Jan. 16	Jan. 28	Remittent fever	Recovered.
Ireland	"	27	21	Feb. 28	" "	" River closed by ice several weeks.
"	F.	7	Mar. 11	Mar. 11	Diarrhœa	Died in four hours.
"	"	5	11	20	"	Recovered.
Germany	M.	24	12	17	Typhoid fever	Died.
Ireland	"	24	24	April 9	Remittent "	Recovered.
"	"	23	25	6	Rheumatism	"
England	"	24	April 19	30	Remittent fever	"
Vermont	"	33	May 2	June 3	" "	Fever superv'd on diarrhœa.
Ireland	"	28	12	May 17	Intermittent "	Recovered.
"	"	1	25			Corpse when landed.
"	"	30	30	June 15	Pneumonia	Recovered.
Germany	"	33	June 12	30	Phthisis	Died.
Ireland	F.	4	16	30	Remittent fever	Recovered.
Germany	"	33	20	30	" "	"
"	"	50	22	29	Typhoid "	Convalescent when landed.
"	"	27	22	27	" "	Died. Sister of last.
"	M.	47	22	29	Dysentery	"
"	F.	30	24	July 3	Typhus fever	"
"	"	38	24	5	" "	Recovered.
"	"	48	24	12	Phthisis	Died.
"	M.	19	24	June 28	Ch. diarrhœa	"
"	"	37	25		Varioloid	Sent to Smallpox Hospital.
"	"	32	25		"	" "
"	"	19	25	30	Diarrhœa	Recovered.
"	F.	22	26		Varioloid	Sent to Smallpox Hospital.
"	M.	½	25			Corpse when landed.
"	F.	17	25	July 21	Typhus fever	Recovered.
"	"	14	25	14	Diarrhœa	"
"	M.	38	26	Aug. 6	Fever	Diarrhœa supervened.
"	F.	33	26	July 20	Phthisis.	Died.
"	"	½	26			Corpse when landed.
"	M.	50	26	21	Diarrhœa	Recovered.
"	F.	4	July 1	14	"	Died.
"	M.	1½	1	Aug. 16	"	Recovered. } Father and son.
"	"	36	2	18	"	"
"	"	6	1	July 5	"	" } Relatives.
"	F.		1	5	"	"
"			5			Corpse.
Ireland	M.	28	2	10	Intermittent fever	Recovered.
Germany	"	2	9	17	Diarrhœa	"
Ireland	"	31	10	17	Chagres "	" From California.
Illinois	"	28	10			Corpse.
Germany	"	18	16	18	Abscess	Recovered.
Wisconsin	"	48	20	July 28	Intermittent fever	"
Ireland	"	28	22	28	Remittent "	"
Germany	"	6	23	Aug. 6	" "	"
"	"	26	25	6		"
"	"	33	25	6		"
"	"	30	27	28	Yellow "	Died.
Ireland	F.	20	30	10	Menorrhagia	Recovered.
"	M.	28	30	18	Yellow fever	"
Indiana	"	24	30	8	" "	Died. Fever supervened on diarrhœa.
Ireland	F.	24	Aug. 5		" "	Corpse.

Quarantine Report, 1853—Continued.

Nativity of subjects.	Sex.	Age.	Date of arrival.	Date of discharge.	Form of disease.	RESULTS AND REMARKS.
Germany	F.	17	Aug. 6	Aug. 17	Erysipelas	Recovered.
Michigan	M.	41	6	Sept. 20	Yellow fever	"
Germany	"	25	7	Aug. 7	" "	Died.
Ireland	"	26	7	20	" "	"
Germany	"	28	10	20	" "	"
Ireland	"	28	10		" "	Corpse.
Germany	"		10		" "	"
Ireland	"	33	13		" "	"
Italy	"	35	16	18	Remittent fever	Convalescent on arrival.
Germany	"	25	16	19	Yellow fever	" "
Ireland	"	32	10	23	" "	" "
"	"	25	10	29	" "	" "
Germany	"	24	18	24	" "	Died.
"	"	26	18	20	" "	"
"	"	24	18	21	" "	
"	"	26	18	18	" "	"
"	"	29	22	29	" "	
France	"	37	22	27	" "	"
"	F.	37	22	30	" "	
Ireland	M.	35	23	25	" "	
"	F.	22	23	25	" "	Convalescent on arrival.
"	M.	29	23	26	" "	" "
Germany	"	23	23	26	" "	" "
"	"	23	23	30	" "	" "
"	"	27	23	29	" "	Died.
"	"	52	23	26	" "	"
"	"	36	23	25	" "	"
"	"	25	23	23	" "	"
"	F.	32	23	26	" "	
Unknown	M.		23			Corpse.
France	"	10	24	Aug. 30	Intermittent fever	
Germany	F.	14	25	Sept. 2	Remittent "	} Brother and sister.
"	M.	8	25	2	" "	
Ireland	"		25	Aug. 26	Yellow "	Died.
Germany	F.	16	27	Sept. 8	Diarrhœa	
England	M.	28	30	26	Intermittent "	
"	"	32	30	26	Yellow fever	
U. States	"	20	30		" "	Convalescent on arrival.
Ireland	"	28	30		" "	"
"	"	23	30	30	" "	"
New York	"	30	30	30	" "	"
Ireland	"	21	31	1	" "	Died "
"	"	18	Sept. 2	5	" "	
"	"	24	2	6	" "	Died.
Maryland	"	32	2	5	Intermittent fever	Recovered.
Ireland	"	26	7	9	" "	"
Germany	"	21	7	9	Yellow fever	Died.
"	"	24	11		" "	Convalescent.
N. Orleans	"	16	14		" "	"
Unknown	"	25	14			Corpse.
Germany	"	18	15	17	" "	Died.
Unknown	"		26			Corpse.
"	"		26			"
Germany	"	23	27	27	" "	Died.
Ireland	"	29	30	Oct. 1	" "	"
"	"	25	Oct. 1	29	Paralysis	Preceded by apoplexy.
"	"	35	5	5	Fever	Died.

Quarantine Report, 1853—Continued.

Nativity of subjects.	Sex.	Age.	Date of arrival.	Date of discharge.	Form of disease.	RESULTS AND REMARKS.
Arkansas	M.	18	Oct. 16	Oct. 18	Intermittent fever	Died. } Brothers.
"	"	14	16	18	" "	} Chronic.
Germany	"	35	20	31	Remittent "	Recovered.
"	"	3	20			Corpse.
Ireland	"	35	21	29	Remittent "	Recovered. } Family from Illinois Central Railroad.
"	F.	12	21	29	Intermittent "	"
"	"	12	21	29	Remittent "	"
"	"	8	21	29	Intermittent "	"
"	"	6	21	29	" "	"
"	M.	4	21	29	" "	"
"	"	36	30	Nov. 6	Diarrhœa	Died. Abscess of liver.
New York	"	28	29	7	Remittent "	Recovered.
Illinois	"	18	Nov. 4	23	Dysentery	"
Ireland	F.	18	6	25	Remittent "	"
"	"	28	6	25	Puerperal "	"
Germany	M.	30	18	25	Ch. diarrhœa "	Died.
Virginia	"	17	29	30	" "	"
Germany	"	27	29	Dec. 6	"	Recovered.
"	"	20	Dec. 16	24	Cholera	"
Scotland	"	24	20	20	"	Died.
Germany	"	40	20	Jan. 12, 1854.	Yellow fever	Recov'd. Typhus icterodes.
"	"	49	20	Dec. 20, 1853.	Cholera	Died } One hour after arrival.
"	F.	46	20	Jan. 4, 1854.	"	Recovered.
"	"	13	20	Jan. 4	Cholerine	" } These five cases were of one family.
"	"	10	22	4	"	"
"	M.	16	21	4	Cholera	"
						River closed by ice until February, 1854.

It will be noticed that the number of cases of disease occurring, or rather landed at quarantine in this year, falls much below that of 1852, or that of 1854. The cases of yellow fever were principally the deck hands of steamboats; among the immigrants there were but few cases.

It will be further noticed that the only cases of cholera reported, occurred in December, and may be viewed as the germs of the epidemic that pervaded the city in the succeeding year. Careful inspection of the quarantine reports will evince what a fruitful source of disease is afforded by the immigrant supply which annually flows into the city by way of the southern river, and it will sustain the general views presented in our report as to the marked prominency of this channel being, in every year, the source of cholera and its cognate, as well as other diseases.

REPORT ON THE YEAR 1854.

This is memorable, in St. Louis at least, as being the most unhealthy and fatal year, after 1849, that has occurred since the reappearance of cholera. It was also remarkable for the hottest and dryest summer known within the recollection of the oldest inhabitants. It was, in this respect, greatly in contrast with the year preceding, which was healthy, and the summer of which was comparatively the most moderate, in point of temperature, experienced for several years. To present these facts in their plainest form, we have detailed the meteorological observations for the spring and summer months of this year in duplicate, showing the daily and weekly climatic data, so as to compare them with the mortuary tables, which we also made out to some extent, to show the daily and weekly results. Cholera, cholera infantum, diarrhœa and dysentery predominated greatly in this year, and the conclusions presented in our previous pages as to the influence of the "cholera cause" in increasing the amount and fatality of those and other diseases are sustained by the statistics of this year. During the excessive heat of the summer, nervous affections were unusually frequent, and fatal in adults as well as in children. Placing out of view the excessive mortality by "sun stroke," the fact still remains that apoplexy, cerebritis and meningitis were of more frequent occurrence in this than in previous summers, when the heats were not so excessive. The chronic results of affections of the nervous centres, exist in many subjects as sad living monuments of the effects of the intense summer heat, aside from the proofs of these which the mortuary registry affords. The visitation of dysentery was the most widely spread and persistent that we have noticed in this section of country; it was also the most fatal. A few cases of well-marked yellow fever originated in the city in August, but that which was most remarkable, as to fevers, was the reduced prevalence of our climatic fevers, particularly intermittent, during the summer and autumn. The mortuary tables give no idea of this comparative reduction, for the excessive prevalence of cholera in July rendered the cases of bilious fever more fatal than in the previous year; hence an erroneous deduction might be sustained from the mortuary data, if these be taken as the basis of conclusions. The diminished prevalence of fevers was the subject of general remark among physicians, and the statistics of the sale of quinine (a plain

index of the relative frequency of these diseases in different years) show a very great reduction in this year compared with the preceding years. In communications sent to us, and from other media of information, we also learn the fact that cholera and its cognate diseases were redundant, whereas climatic fevers were diminished. This remark applies to almost every section of the State, and was generally referred to the one cause, namely, the excessive heat of the summer, the absence of humidity, and the thorough desiccation of organic matters in the soil. The only exception to this in any section was in the northern counties of the State, and in southern Iowa, which district was visited by heavy rains in July: these climatic fevers commenced earlier than usual.

Diseases of St. Louis.

Cholera.—This disease appeared, in this as in other years, first by relays of cases in the first or winter quarter. The earliest notice we have of its approach was the occurrence of cases at quarantine in December, 1853. Additional cases occurred there, and in the city in January and February, 1854, among immigrants, crowds of whom began to pour in on the opening of navigation and continued for the rest of the year. The total number arriving at quarantine in February and March was over 5,000, the total there arriving from February 1st to June 30th was 12,775. (See Quarantine Report and Statistics of Immigration.)

In the beginning of April, a sudden increase of the disease was noticed in this city; a diminution of it occurred towards the end of that month, which was maintained until the end of May. During the second and third weeks of June, however, the prevalence of the disease was greater than in any preceding weeks of the year, and it continued rapidly increasing, and from the first to the tenth of July, the epidemic was at its maximum. A gradual diminution then began, which continued until the middle of August, when an increase was again observed, which prevailed to the end of the first week in September, when a rapid reduction was maintained, and by the end of the month the epidemic ceased in the city. Three stadia are therefore noticeable of the disease in this year; the first, beginning in January, ended with April; the second, beginning after the middle of May, attained its acme by the middle of July, declined until the middle of August, when the third and last *stadium* was presented, which ended with September. Of these, the

second or middle was the severest as regards the extent of its diffusion, or the number included in its outbreak.

The general opinion of physicians, as to the character of the disease in this year, is that is was as virulent as in 1849, the great cholera year. In our opinion it was even more malignant than in that year. The cases we saw, and those of which we heard, were more rapidly fatal than the generality of cases coming under our notice in 1849. The diarrhœal stage was more briefly displayed, the stage of collapse more rapid in progress, the general distress of the patient was greater, and the signs of cerebral and pulmonary congestion were more marked, and were presented earlier. We need scarcely add that remedies seemed more powerless in this than in any previous epidemic. In short, in proportion to the number attacked, cholera in this year carried off a greater proportion of subjects than in any of its previous visitations.

Class of Subjects attacked.—The newly-arrived immigrants suffered most severely from this disease. We have no means of computing accurately the proportion they formed of the weekly mortality in the city, as the legal ordinances which require a statement of the nativity, period of residence, locality, &c., in the physicians' reports of deaths were not fully enforced by the city authorities. The immense excess of mortality amongst the immigrant class attracted the attention and censures of the public press, and, as an evidence of the above we take at random a few extracts from these prints, as well as also to show the popular estimate of our last summer weather :—

(From "the St. Louis Republican.")

"*Weekly Mortality in St. Louis.*—We annex the official report of the City Register of the mortality in St. Louis, for the week ending on the 12th. The total number of deaths, it will be observed, was 162, being an increase of 57 on the previous week. But it will also be noticed that over one-half of those who died were persons who had been in the city but a short time; 40 having been here from 1 to 15 days only, 35 from 1 to 30 days, and many others from one month to 4 or 5 months. The weather, too, was such as had rarely been experienced here so late in June—cold, wet and cloudy—making fires absolutely necessary to comfort. Some of the deaths were produced by cholera well defined; but the cases cannot be regarded in any other light than as sporadic, and we have no apprehension of any epidemic during the present season.

It is more than probable that the next report of deaths will diminish the number now recorded.

"Abstract of deaths in the city of St. Louis, for the week ending June 12th, 1854:—

White males	88
" females	71
Children of five years and under	70
Free colored	2
Slave	1
Total	162

"Of the above deaths, over one-half are emigrants, who have been in the city but a short time, viz: 40 from 1 to 15 days; 35 from 1 to 30 days; and also many others who have been in the city from one month up to four or five months. Attest:

"SOC. NEWMAN, *Register*."

(From "the St. Louis Republican.")

"*Mortality in St. Louis.*—The weekly report of the whole number of interments is published below. There is an increase on the previous week's statistics of ten; but it would seem from the physicians' certificates that only forty of the whole number were citizens of St. Louis, all the others were from abroad, and mainly emigrants from Europe. The public hospitals furnish a very considerable proportion of the deaths, and the patients are generally sent there in a dying condition.

"Abstract of deaths for the week ending, June 19th, 1854:—

White males	89
" females	81
Children of five years and under	75
Slaves	2
Total	172

"N. B. From the very imperfect returns of the physicians and from their not complying with the law and ordinances of the city, it is impossible to make a correct statement as to the number of emigrants who have died during the week.

"On an examination of the certificates one would judge that, out of the total mortality, 40 only were citizens. Attest:

"SOC. NEWMAN, *City Register*."

(FROM "THE ST. LOUIS REPUBLICAN.")

"*Health of the City.*—Innumerable reports have been circulated in regard to the health of the city, and, as the best means of informing the community accurately of the facts, we have obtained of the City Register a somewhat detailed statement of the interments at each cemetery for the week ending with Sunday last: according to the official reports, there were the following interments in the different cemeteries:—

City Cemetery	96
Rock Spring	174
German Protestant	44
Lutheran	14
St. Vincent	89
Salem	29
Holy Ghost	52
Bellefontaine	19
Total (July 10)	470

"Of this number, 207 were of 5 years of age and under, and the deaths from cholera were 207. Of the interments in the city cemetery, all were emigrants newly arrived; and over two-thirds of those interred in the Rock Spring cemetery were also emigrants. The same might be said of the Holy Ghost, and one or two other cemeteries.

"We need not undertake to account how it is that emigrants die in this wholesale manner. There are those who ought to inquire into and correct these evils. Nothing can be more certain than that it is absolutely necessary that they should take passage on commodious boats from New Orleans; that they should undergo some cleansing process after leaving ship-board; that they should be careful of all excesses in eating and drinking whilst on our steamers, and that they should be furnished with clean and well ventilated quarters on their arrival here. Instead of this, they are crammed on board our steamboats immediately on their arrival at New Orleans, and by their own emigrant agents; they buy and eat everything within their reach; and by the time they reach here, they are all fit subjects for cholera, ship-fever, or anything else. Here they are stowed away so thick, in the most uncomfortable tenements in the town, that it is a miracle if they fail to sicken and die. Were it not for this wanton neglect of these unfortunate emigrants, by those who ought to take more interest in them, our bills

of mortality would present no remarkable increase—none not justified by the extreme heat of the summer.

"Two such weeks of hot weather as we have just passed through, have never been experienced in this city. Every day for that time, and almost every night, the heat has been intense. There has been no change or mitigation of it, and the pavements and the houses are heated to an extent never before known. Almost every day of the past week, persons who were exposed to the sun were stricken down, and a good many of them lost their lives. On Sunday, seven died from this cause. There were others, females as well as males, who died from the imprudent use of ice-water, and these accidents go to swell the list of mortality.

"We make these statements in order to quiet the minds of those who may have friends here, or who may have business here. As soon as there is a change in the weather, and immigration ceases, there will be a change in the bills of mortality. Few foreigners are now arriving from New Orleans, and those who are now here, will soon be convalescent."

(From "the Republican," July 14th.)

"*The Health.*—A portion of the city in the neighborhood of the Park mill on Market Street, was greatly afflicted on Sunday and Monday by fatal cases of cholera. The deaths numbered some fifteen. After that time the disease abated. On Wednesday, yesterday morning, there was only one death. The ravages of the disease were confined to one block chiefly inhabited by emigrants, and in a most insalubrious condition."

(From the "St. Louis Evening News," Sept. 1st.)

"*Hot Weather.*—The long continued hot weather is almost unprecedented in this city. For almost four months the thermometer has ranged in the neighborhood of 100, as often above as below. Yesterday, there were seven deaths from sunstroke reported, and probably several more not known. Had the weather been damp instead of dry at the same temperature, the health of the city must have suffered severely. The decay of vegetable matter producing the malaria so favorable to the prevalence of febrile diseases, has been prevented by the heat drying it before decomposition could take place. The state of the atmosphere and of the sky at present seems to indicate the near approach of rain, after which, it is to be hoped, the temperature will be considerably lower."

(FROM "THE REPUBLICAN," SEPT. 19TH.)

"*Office of the Board of Health.*

"For a few days past, this office has resembled a hospital more than anything else. The sick from the city and county have poured into it, and sometimes the place has been almost jammed with invalids lying over the floor, on the doorsteps, and leaning their emaciated forms against the walls, pleading for relief.

"Last evening the office was thronged with ten or a dozen of these poor distressed beings, who had been sent in from the railroad. They had been taken sick and were unable to work, and had come upon the city for succor. Some of the city officers were in a quandary in regard to the proper method of disposing of these subjects. They thought the city had nothing to do with them, and that the county should take care of its own paupers. As they had not been residing in the city for a length of time, they could not be considered as entitled to an asylum in the City Hospital, but it was finally concluded to give them the benefit of it, as some disposition had to be made of them. These invalids had been lying there, exposed in the streets for two or three hours, and there is scarcely an hour during the day that the office does not contain two or three hospital subjects."

The following, published, we believe, in 1849, is as appropriate as it is true of the year 1854:—

"*Health of St. Louis.*—The editor of the *Memphis Eagle*, who has been, it seems, a citizen of St. Louis, indulges in the following expositions in regard to the present epidemic in St. Louis and Cincinnati:—

"'We do not think, however, that the causes of this extraordinary amount of deaths can properly be found to be local to St. Louis. After a residence of many years in that beautiful city, we are prepared to pronounce it one of the healthiest places in the valley of the Mississippi. In no city have we met more of those venerable men whose whitened locks proclaim that patriarchal age which an otherwise hale appearance would seem to belie, and, from some observation in the premises, we judge the average length of human life in the city of St. Louis to be greater than in any other city of the West.

"'The secret—if secret it be—of the immense mortality in St. Louis, is found in the fact that it is a point upon which foreign

emigrants concentrate more largely than upon any other in this country. Not only is this the case, but it is further a kind of mammoth caravansary, in which emigrants of all climes and nations tarry for a day, or a week, or a month, and then spread themselves, portions of the mighty tide of immigration to this country, through the unoccupied portions of the great and rich northwestern valley. They generally bring with them to St. Louis the seeds of diseases which float upon the thousand winds through which the traveller passes, and then they fall victims finally to the malady, contracted on the disgusting after-deck of a Mississippi steamer, or in the gloomy, comfortless, and ill-ventilated cabin of a lazily-moving canal boat. The quarantine which the authorities of St. Louis have just established, is, we think, a wise, humane, and necessary arrangement, beneficial to the emigrant, not injurious to commerce, and all important to the city. It will efface from St. Louis the reproach of being called the graveyard of the Mississippi valley, and will place the emigrant under most judicious sanitary restraint and medical supervision. The quarantine should be established as a permanent measure.' "

The editor of the *St. Louis Medical and Surgical Journal*, in his number for July, presents some remarks on the health of the city, which fully concur with the statements above given. We refer our readers to the number, p. 380.

Causation.—No disease, in its origin and progress, shows more clearly the influence of the "crowd poison" than epidemic or Asiatic cholera. It originates in the midst of the Atlantic, in the crowded steerage of the immigrant ship, which sailed from no unhealthy port to which the germinating seeds of the disease could be traced. It proclaims itself on the deck of the Mississippi steamer, surcharged with its living and dying freight when the port whence the vessel sailed, and those which it passes are exempt from the disease. It breaks out amongst these emigrants in the crowded hovels in which they herd together on landing. It thus infests them until the poison, gathering potency in the narrow alleys and humid courts of the city, and fostered by the habits of the immigrants, spreads from there as a foci and contaminates other like localities. Such has been the source of cholera in St. Louis, in every year of its visitation.

Selection of Victims.—It has been often noticed that this disease selected its subjects as if by preference from certain families, to the exclusion of others, in every way similarly exposed to its attack.

This selection once made, the fatality of the disease was remarkable.

Dr. McPheeters, in his report on epidemic cholera in St. Louis in 1849, relates instances of this "elective affinity," and, in the subsequent years when cholera has prevailed, the same has been observed. Thus, in this year, an English family, composed of father, mother, and six children, were landed at quarantine. Notwithstanding every precaution that could be taken to prevent it, the mother and three children were there attacked; the mother and two children died. To prevent, if possible, their further exposure, the remaining members of the family were removed to the city. A few days after their removal, two of the children were attacked and died. In this case the quarantine physician was awakened to the danger of the family, for he had observed this family proclivity to the disease in other instances, and therefore took every means at command to prevent the anticipated result, yet without avail. Many other families, situated in every respect like this one, and even more liable to the disease by reason of their imprudence, nevertheless escaped. Dr. Leavenworth, who stated the above facts to us, noted other instances of a parallel kind. Under our own observation, similar cases have occurred. This family tendency to the disease is not dependent upon locality, for of some families of whom it is recorded, the members were scattered, some being in the city, others in the country, yet the disease selected them as victims. When an inception of this kind has appeared in a family, that is, when several members have been attacked, we have known of the others being removed to presumed healthier localities in order to avoid the disease, yet it pursued them.

Localization of the Disease.—The disease prevailed to a greater or less degree, in every section of the city, but in some districts more than in others. The unimproved sections, or those in which grading had been but lately effected, suffered more than the well improved central portions of the city. This was owing in part to the character of the local population, but as much, also, to topographical circumstances. The population mostly attacked were reckless of exposure, very imprudent in their habits of living, and domiciliated in crowds in illy-ventilated and damp tenements. Localities which had been recovered from partial or complete inundation by filling in with earth, or other means of drainage, were the selected haunts of the disease. Districts noted as the foci in every year of bilious and intermittent fevers, and of diarrhœa and

dysentery, were, in cholera years, overrun by this disease. It is a remarkable fact that steamboats which in one year were visited by the disease, were most liable to its reappearance in subsequent years. This can be sustained by reference to our city newspapers for the years that cholera invaded the city. Among the localities within the city that may be noted as cholera districts, are the first and second wards in the southern section, the "graveyard" lying between Chouteau's Lake and Market Street, and Ninth and Eleventh Streets; "Hell's half-acre," which was formerly the basin of the lake, located between 5th and 7th Streets, and Spruce Street and Chouteau Avenue; the block bounded by St. Charles, Eighth and Ninth Streets, and Washington Avenue, and a cluster of eight or ten squares, or blocks, the centre of which is the intersection of Eleventh and Morgan Streets. In these last two localities, the neighborhoods are, to some extent, supplied with water from wells excavated in part in the limestone strata underlying the soil, which is here not very deep.[1] The surface drainage has a fair opportunity to percolate the soil and mingle (very imperfectly purified, it may be supposed, by the filtration) with the well water. The localities last described are in the central surface section of the city, according to the topographical description given in the opening pages of our report. Another cholera district in this section is the vicinity of Green Street from Fourth to Tenth Streets. The district composed of from 30 to 40 blocks, bounded by Franklin Avenue and O'Fallon Street south and north, and Sixth and Fourteenth Streets east and west, has, in every year, been severely visited by cholera. This district is traversed by low land which was formerly an extensive ravine or pond, now recovered from inundation by draining. The north sections of the city, the towns of Bremen and Lowell, are also among the districts that, every year, were pregnant with cholera.

(An instance of the localization of cholera poison is reported to us while we are writing (April 26th). Within a week, eight cases of cholera, all fatal, have occurred in an alley between Franklin Avenue and Wash. Streets, and Sixth and Seventh Streets, E. and W. These are the first cases in this year (1855) that have occurred in this section of the city, and originate in the only tenements in the alley that were invaded by the disease last summer. An-

[1] We doubt if the soil, in either location, extends 20 feet perpendicular below the surface.

other instance we may report as occurring in a previous year. In the block bounded by St. Charles, Eighth and Ninth Streets, and Washington Avenue, a family removed to avoid the pestilential neighborhood, one of the members having died by cholera. The removed members were exempt from the disease so long as they remained away from the deserted house. In some weeks, their alarm having subsided, and the health of the locality having improved, two of the family returned to the house to supervise its being cleaned, previous to its being again occupied. On their return to their temporary residence, at a distance from their former infected dwelling, both of them were attacked with cholera, one on the night succeeding the visit to the infected dwelling; the other on the third day after.)

Mortality.—This is shown in the following Monthly Table. In a subsequent portion of the report, the daily mortality during the epidemic is presented in connection with that by diarrhœa, &c.

Monthly Mortality by Cholera in St. Louis, 1852.

	Jan.		Feb.		Mar.		Ap'l.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Total.		Aggregate both sexes.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F	
Under 2 yr's	..	..	..	..	..	1	1	2	7	6	28	17	21	19	3	3	..	2	1	..	..	..	..	..	61	50	111
2 to 5 "	..	..	..	..	1	1	4	1	18	9	32	36	30	37	3	4	2	..	1	1	..	..	1	2	92	91	183
5 " 10 "	..	..	..	..	..	1	6	6	10	3	16	14	22	17	6	6	1	3	2	1	..	..	1	..	64	51	115
10 " 15 "	..	..	..	..	1	..	1	4	6	6	9	10	17	7	2	1	1	1	1	..	..	..	..	..	38	29	67
15 " 20 "	..	..	..	..	..	..	3	1	9	3	12	12	11	16	2	3	1	1	..	..	..	..	..	..	38	36	74
20 " 30 "	..	..	1	..	..	..	20	5	25	11	42	52	65	50	20	15	16	5	4	..	2	..	3	..	197	138	335
30 " 40 "	..	..	..	..	1	3	12	1	18	16	50	43	61	49	14	11	5	4	4	3	..	..	1	2	166	132	298
40 " 50 "	..	..	..	..	..	1	7	4	15	9	24	26	28	25	13	9	5	1	..	..	1	..	..	2	93	77	170
50 " 60 "	1	..	..	..	..	..	5	2	5	5	19	14	14	16	8	5	2	..	1	..	..	..	..	..	56	42	97
60 and over	..	..	..	1	..	..	4	2	2	4	8	9	9	15	1	5	1	2	1	..	..	1	1	..	27	39	66
Unknown	..	..	..	..	..	.	..	..	3	..	5	1	2	2	1	1	1	2	..	..	..	..	.	..	12	6	18
	1	..	1	1	3	7	63	28	118	72	245	234	280	213	73	63	34	21	15	5	3	1	7	6	843	691	1534

ANALYSIS.

	Per cent.
Ratio of cholera mortality, to entire mortality of the year	22.55
" subjects dying under 5 years of age to population of same age	1.53
" " of 5 to 10 years to population same age	0.81
" " of 10 to 15 " " "	0.67
" " of 15 to 20 " " "	0.77
" " of 20 to 45 " " "	1.04
" " of 45 to 60 " " "	3.89
" " of 60 years and over " "	4.77

DIARRHŒA, DYSENTERY, CHOLERA INFANTUM.

We notice these diseases in connection, because their maximum prevalence in this year occurred at the same time, namely, in the summer. They were all equally influenced by the same meteorologic causes, were often intercurrent one with the other, all prevailed to an unusual extent, and were under the influence of the one great epidemic cause, that of cholera, which prevailed in the city from April to October.

DIARRHŒA first became manifestly prevalent in the months of March and April, when epidemic cholera was about beginning its reign. It somewhat diminished in May, but resumed its course in an increased degree in June, and persisted, with but little variation until October. The disease observed in the autumn was rather marked among the resident population, but among emigrants recently arrived, it continued with much fatality until December, when it was reduced, yet not to the degree usually observed in the winter season. On looking over the mortuary table, it will be observed that the monthly mortality by this disease was nearly uniform for the last half of the year.

DYSENTERY was more than usually prevalent in the final winter months at the commencement of this year, as also in the vernal quarter. During the last vernal month it was more prevalent than ever before known in the city in this month. In July, August, September, and October, its epidemic invasion was the most extensive we have ever witnessed; in November, its ravages diminished in a more notable degree than did those of diarrhœa; still, in that month and in December, the number of its victims was unusually great for that season of the year. In point of limit of time that it existed, it was, we believe, the most persistent epidemic we have ever known here.

CHOLERA INFANTUM began earlier this year than usual; its invasion was greater than in any year within our knowledge, for the climate or meteorological circumstances upon which it depends were notable in this year, and its mortality exceeded that of any previous year. The one great cause that most notably influenced it, namely, atmospheric heat, was in this year unusually powerful, and it was aggravated by the epidemic influences which generated cholera, dysentery and diarrhœa, that is, if these have a causation different from that of cholera infantum.

We may, perhaps, be better able to show the prevalence of these enteric affections, the congeners of cholera, by the following quotations taken from our diary of prevalent diseases of St. Louis, and entered during the spring and summer when their distribution in the city was most liberal. May 15th. Some alarm among our citizens about cholera, which is for the first time attracting public attention. Diarrhœa is, evidently, more than usually distributed in the city; the preceding form is cholerine.

May 31st. Tendency to distribution of dysentery is very manifest. The prodromus is, in most instances, occasional colic pains, relieved by a discharge of flatus; some complain of malaise, loss of appetite, and have slightly furred tongue. It is noticeable that the alvine dejections are suspended during the day and become profuse at night. Before dysentery proper is manifested, the symptoms are sense of pain and weight in the stomach, experienced after taking food, and some one or two semi-fluid alvine dejections occur, colic preceding them. This is probably owing to the distended stomach pressing on the irritable transverse colon. In some instances, the frequency of the operations is scarcely augmented; the patient's appetite may be unimpaired; his general feelings during the day are as usual when in health, with the exception of occasional colic pains and flatus, with sense of abdominal weight and discomfort; he rests well at night, but next morning is early aroused by colic, and call to stool; the *debris* of digestion, with vitiated secretions from the small bowels, having reached the irritable colon, soon make their presence there known, by calling for their discharge. A profuse semi-fluid stool, composed of fragments of firm feculent matter, mingled with more vitiated feces fluidified by mucus, is discharged, and in an hour or two another dejection, smaller than the first and similar in character, occurs, when the bowels remain quieted until the next morning, when the same *rôle* is repeated as on the day before. These temporary disturbances continue several days, when a variation of temperature or humidity, or an excess of diet, or a meal of fruit, or some other source of increased intestinal derangement intervenes to occasion augmented irritation of the mucous coat of the large bowels, when the more marked and severe symptoms of dysentery set in and persist. The cases of this dysenteric tendency have so far, this season, been gradual in their progress, the programme above described persisting for a variable period of from three to six, eight, or ten days. Some cases go no further than the stage of prodromus, or that of colic irritation, the

subject being prudent enough to correct the abnormal tendency by strict regulation of diet, avoiding other than the farinaceous, and by proper precaution as to exposure to humidity, or insolation, or he takes a laxative combined with, or followed by an anodyne, and the disorder ceases. Some, however, avoid all prudence, or, if cautious for a time, intermit it when but partially relieved of the first threatening of disorder, and experience an increase of symptoms; prudence observed for a brief period, again partially relieves them, caution is again remitted, and the disorder again increases: thus a succession of imperfectly formed attacks recur until a severe and perhaps dangerous attack of ileo-colitis or colo-rectitis is fully established. In the generality of such cases, during the stage of prodromus, although the appetite may be well sustained, a redundancy of acidity in the primæ viæ exists, and eructations occur after ingestion of food, and the alvine evacuations redden litmus paper. Antacids, if resorted to, correct for a time the symptoms, and defer the advent of the graver stage of disease. In this early stage, nausea occasionally attends; in some instances the food is ejected with permanent relief of the disorder, if prudence of diet and exposure be subsequently observed. The tongue in this stage is moist, and has a thin white fur coating its centre; fleeting borborygmi also occur. The nights may be passed somewhat restlessly; the pulse is yet undisturbed, unless the dejections are frequent, and attended with tormina, when it will be frequent and feeble. June 12th. Great numbers complaining of diarrhœa. Cholera notably increasing. The prevalent forms of diarrhœa are those which we previously described as the prodrome of dysentery, namely, the muco-feculent, attended with colic, loss of appetite, &c., and the choleraic or cholerine, a profuse, painless, serous diarrhœa, accompanied with borborygmi. The latter class is perhaps in excess, and the former as to the number attacked. In the former class of cases, the dejections occur soon after rising or after breakfast, and number two or three in the day, the first dejection being perhaps solid and healthy as to color, or but slightly softened, retaining the mould of the intestine, but very pale, being of an ash or sulphur color; this evacuation is succeeded in two or three hours by another; which is semi-fluid, and white, or gray, or of a pale sulphur color, which is voided with tormina and perhaps tenesmus; a third and perhaps a fourth similar to the second is voided within the next twelve or sixteen hours. The tongue is slightly furred with white and is yet moist; the skin is sallow and pallied; the adnatæ are icterode, the appetite

is diminished, there is some sense of general feebleness complained of, but no marked fever. Bilious diarrhœa is also very prevalent, as is generally the case in this month. June 20th. Mortality much increased during the past week. Cholera is extending, and diarrhœa is very prevalent, as the prodrome of dysentery in its muco-feculent form, or of cholera in its serous form, or as an independent disorder in the form of bilious diarrhœa. The most interesting is that which is the initiatory stage of dysentery. The undue prevalence of colorless yet consistent, or semi-consistent alvine dejections is very marked in all its subjects. In this form, a draught of ice-water almost invariably induces tormina and call to stool. June 24th. We have never seen disorder so generally prevalent as diarrhœa has been for the past week; four-fifths of those we meet complain of it. The predominating form is that attended with semi-fluid muco-feculent, ash-colored, or white dejections, with tormina, flatulency, furred tongue, and no perceptible fever, or but fleeting febricula. In those subjects who confine themselves to a farinaceous diet with white meats, two or three of these dejections, rather copious, occur early in the day; paroxysms of colic occur as the day passes on, with one, two, or three small pallid evacuations, or with merely discharge of flatus; at nightfall a copious semi-fluid dejection is passed, and operations are suspended during the night to recur again in the morning. In those who mingle fibrous vegetable matter in their diet, the dejections are more copious, fluid, frequent, and painful, and some ileo-colitis is fully manifested. July 1st, July 8th; July 15th. The record merely repeats that the tendencies to disease observed are the same as in the week preceding. Cholera has much increased, and with it there has been a cessation of almost every form of disease. Cholera infantum is very prevalent, cases of measles and of pertussis are distributed in the city; the number of deaths by sunstroke has been greater than ever known before.

It will be unnecessary to quote further from the journal, as the extracts given bring us to the period of the maximum prevalence of the epidemic of intestinal diseases in the same summer. The record for the months of July and August, presents little more than a repetition of the entries already quoted, with notices of the occasional variations observed in the account of these diseases, and the influence of meteorologic circumstances on these variations. By comparing the weekly mortuary and meteorological tables, very correct deductions as to the operation of climatic causes in the

prevailing diseases of the summer may be educed. The operation of extreme heat in increasing the intestinal disorders, was very manifest, and the favorable influence of reduced temperature in diminishing them was very notable. For example, on July 9th, a change from hot to comparatively mild summer weather occurred, with wind prevailing from the north; this continued, with some elevation of summer temperature, during the day, but with cool nights, until about the 16th. During the week, the occurrence of new cases of these diseases diminished, and subjects previously threatened with dysentery were relieved, their dejections becoming darker, more consistent or pultaceous, and the amount of mucus passed and the tormina diminishing. The same favorable change in disease was again manifested from August 4th to 9th, when a similar change of temperature and wind prevailed. In both of these weeks there was a notable reduction in the mortality by these diseases. On the other hand, we take the entry in the journal for August 27th, which states that, in the preceding week, the weather had been intensely hot day and night; clouds floated several evenings, promising rain, but none fell; scarcely any breeze stirred, which, with the radiation from the clouds, rendered the weather intensely oppressive. As a consequence, disease, generally, was much augmented, and an increase of fatal cholera was a marked result.

The foregoing journalized quotations will afford an idea of the symptoms of the milder form of dysentery. For the purpose of illustration, we may divide the disease, as it usually occurs in St. Louis, into two forms—the mild and the grave, including in the former those cases which are described in the passages quoted, and which constituted a large proportion of the number that occurred in the summer of this year, and, indeed, of every year. The prominent symptoms of the mild form are, increased dejections of feces, fluidified by mucus, and tinged with blood. It will be remarked that the dejections, in the early part of the epidemic season, were near the normal alvine color; as the hot weather advanced, they departed from this hue, assuming the indications of deficiency of bile. They were whitish or grayish, or like the color of sulphur lotum. In the former, known as "bilious dysentery," the redundancy of irritated bile in the alvine dejections, or of a secretion resembling it, gave name to the disease. Sense of weight in the bowels, tormina, in few instances, tenesmus, and loss of appetite were in the mild form associated with the alvine profluvia; but the

general system sympathized but little, in the early stage of the disorder, with the local intestinal distress. If the disorder were neglected, or if it were aggravated by imprudence, fever was superadded to the enteritic lesions, and tenderness, on pressure over some portion of the colon, became manifest. The disease would now increase, and present the succession of changes ordinarily recognized in acute dysentery. The mild form of dysentery, as above referred to, which is the precursor of the graver colitis, we are inclined to view as depending primarily on hepatic congestion, the colitis being the secondary lesion. It is one of the forms of manifestation of what Johnston terms cutaneo-hepatic sympathy, a union of terms which, however vague or unsatisfactory it may appear to some minds, still expresses an idea of relationship or causation which few, who have witnessed the dysentery of hot climates and investigated its etiology, can avoid accepting. The succession of symptoms, in the precursory stage of the disorder, bears out the opinion that hepatic congestion is a primary link in the morbid catenation. There is deficient secretion of bile, as manifested by the pallid hue of the alvine dejections; there is loss of appetite, gastric disturbance, sallow or bilious surface, icterode adnatæ, fulness in the right hypochondrium, coated tongue, &c. When these have lasted for a variable period, increased intestinal evacuation occurs; the dejections—two, three, or four in the day—are diluted with mucus, and preceded by tormina; blood makes its appearance in the dejections; darting pains traverse the colon; the track of this bowel becomes tender on pressure; fever, more or less marked, in time sets in, and finally we have signs of exudative lesions manifested on the walls of the colon. We speak of exudative change in the walls of the colon for the reason that it has been, under our observation, one of the most frequent structural changes known in this form of dysentery. Often the sigmoid flexure, or transverse arch of the colon can be distinctly traced by the rigid state of the walls, developed as disease advances. Tenesmus, it was remarked, was not often a symptom in the mild form of dysentery. This form of the disorder, in the adult, yields readily to remedies directed in view of the pathology above stated. A few grains of calomel, or of blue mass with opium, repeated three or four, seldom oftener than six times, until bile is apparent in the stools, usually results in diminution of the amount of the mucus and blood, and of the frequency of the dejections; fever, if present, abates; and rest, with due regulation of diet, and, perhaps, an aro-

matic and anodyne draught, subsequently, complete the cure. The general effect of the combination referred to, when given in the mild form of dysentery, is to restrain the alvine dejections, and diminish the abdominal distress; at the end of twelve, sixteen, or twenty hours from the administration of the first dose, the pro-bilious operation is usually established, and the symptoms are observed to yield. In the severer cases of this form of disorder, where the signs of structural change in the glands and submucous tissues of the large bowels exist, the employment of moderate topical depletion, succeeded by warm fomentations and blistering, with the necessity of continuing the mercurial to incipient ptyalism, are generally found sufficient to arrest the progress of the disease. It is of advantage often to intermit the mercurial and exhibit the oleaginous or saline laxatives, combined with anodynes, in order to avoid ptyalism if possible; but the mercurial doses cannot, within the general experience of practitioners in this section of country, be entirely superseded in the treatment of the early stages of dysentery in the adult subject. The remarks we have made, apply to one form of dysentery common to the summer season in this portion of the West. It is that form which is marked by a somewhat protracted display of the mild symptoms of dysentery; it is the form we have witnessed oftenest in the adult; it is individualized, so to speak, by the comparatively mild array of symptoms, by being unattended with marked, active, febrile excitement in its early stage. Yet it has a severer stage, or grade, which is the result, sometimes, of neglect of remedies; sometimes, however, this severe stage will supervene, notwithstanding the best directed efforts of art.

The mild form as described, if protracted or neglected, finally attains the severer grade of well-defined colitis, or ileo-colitis, or colo-rectitis, and, in some cases, the inflammation involves the remaining section of the bowels and the stomach. In some instances cystitis is superadded, and, in the adult female, morbid uterine engorgement is an almost necessary complication. When the mild is transferred into the severer grade, the change is usually marked by the occurrence of chilliness, followed by marked febrile reaction, or the febricula of the mild stage exacerbated without chilliness preceding; the heat of skin is increased, the pulse becomes more excited, and the local lesions are much aggravated; in short, the disease now presents the *rôle* of symptoms of acute colitis, with no marked variation from the symptoms of those cases in which acute colitis

is rapidly or promptly evolved in the inception of the attack. To illustrate this, the grave form of the disorder, we quote the prominent symptoms of the following cases, taken at random from a number now before us:—

M., female, æt. 38. September 19th, acidity of stomach, flatulency, slight muco-feculent diarrhœa. 20th, 12 M. Chilliness, fever, frequent muco-sanguine dejections, severe tormina and tenesmus; tongue coated white, its moisture diminished; catamenia, which recurred last week at the due period, to-day returned, attended with usual signs of uterine engorgement; pain in lumbar region distressing; abdomen tender to pressure over uterine and colic spaces; pulse full, firm, tense, ninety-five per minute; nausea, dyspnœa, palpitations of heart. 21st. Symptoms much aggravated last night, now temporarily diminished. Treatment, mercurial with opium, cups to sacral and lumbar regions, warm anodyne fomentations. 22d. Symptoms again aggravated during past night, dejections very frequent, composed of mucus with much blood; tormina frequent and distressing; dysmenorrhœa; skin variable, alternately hot and dry, and cool and sweating; pulse full but soft, eighty-eight per minute. Continued treatment as yesterday, substituting morphia for opium. One-sixth grain sulph. morphiæ given, produced deliria, which subsided on recurrence to opium. 23d. *Mane.* Incipient ptyalism; pulse seventy-two, soft, irregular; skin variable as to temperature and secretion; ten dejections last night, one bilious, the rest of mucus and blood. *Vesper.* Four small muco-sanguine dejections since morning, skin cool, palpitations of heart frequent and distressing, pulse irregular and feeble. *Nocte.* Nausea persistent, vomiting of bile frequent, profuse bilious feculent dejections, with much tormina and tenesmus.

Treatment.—Blister to abdomen. ℞.—Liq. anodyn. Hoffmani c. tr. opii acet.; anodyne enemata. 24th. Small muco-sanguine dejections; nausea continues; pulse, heart and skin as yesterday; exhaustion more marked; course of colon tender to pressure, dysmenorrhœal symptoms persist. 25th, 26th, 27th. Symptoms much the same as on 24th. During the day they remit in violence, but at night are aggravated. Treatment, nutritive stimuli and anodynes, with oleaginous mixture. On the 25th, at night, two grains of English extract of hyoscyamus were given, which produced frightful dreams, deliria, cold sweating, and excessive irritability of stomach and bowels. The frequency of the dejections and tormina were notably increased. A repetition of the extract to the extent of a grain

and a half, on the 26th, was followed by the same unpleasant results, which are controlled by exhibiting camphor and opium. The inference is that the extract given was unusually good, and that acrid as well as narcotic effects may result from this agent, when given in full doses. 28th. Frequent small mucous dejections without blood during the day; tormina diminished, tenesmus severe; other symptoms more favorable. *Nocte.* Consistent bilious dejections, rather profuse, set in, with increased tormina and tenesmus, and exacerbations of palpitation of the heart; no mucus or blood passed; tenderness of abdomen diminished; pulse yet feeble and irregular. 29th. Tormina much diminished; tenesmus frequent, with extrusion of mucus and blood in very small quantity; fibrinous tape-like bands, several inches long, observed in the dejections. Catamenia suspended. Flatulent eructations very distressing, with distension of the bowels and borborygmi; urine diminished, and high colored; dysuria. Palpitations of heart diminished, pulse feeble and irregular, ptyalism disappeared. Treatment, supporting and anodyne, mercurial and vegetable astringents ventured on, but now to be suspended, as they increased the sensation of abdominal distress. ℞.—Ol. amygdalæ dul. f℥i; aquæ lauro-cerasi f℥iij; aquæ pruni Virginianæ f℥i; syrup orgeat f℥ss; ol. terebinth. gtt. lx; tr. opii acet. gtt. lxx; aq. q. s. ad f℥iv. Sum. pro dos. coch. amp. no. ij, qq. tâ horâ. 30th. Some symptoms of yesterday, but diminished in degree; elongated fibrinous bands still appear in the dejections. *Nocte.* Irritative fever well marked, the track of the transverse arch and sigmoid flexure of the colon distinctly traceable through the abdominal walls, by their rigid tumidity, evincing plastic deposition in the walls of the bowel. Resumed mercurial treatment. ℞.—Mass. hydrarg. gr. xvj, opii gr. iv, in pil. no. vj. Sum. pil. j, qq. 3 tâ horâ. Renew vesication over the colon. Oct. 1st. Patient rested all night without being disturbed by call for dejection; three doses of the pills taken during the night; this morning has passed one black consistent dejection, moulded to the form of the bowels, and accompanied by about f℥ of pus, separated from the feculent matter. Ptyalism again noticed. *Vesper.* No dejection since morning. Treatment. Demulcents with animal jellies, and stimulants. 2d. No dejection during the night; irritative fever maintained in diminished degree; induration of the colon less apparent. *Vesper.* Sum. ol. ricini c. tr. opii. 3d. Laxative operated mildly during the night. 12 M. One consistent feculent dejection passed, followed by a small quantity of mucus, pus, and blood. 4th.

One dejection, the same as yesterday. Irritative fever noticed every evening; the daily dejection always accompanied by nausea. Pus continued to be present in the dejections until the 7th, and irritative fever continued. From that date slight gastric disturbance persisted until the 18th, when the patient recovered. The treatment after Oct. 3d, was doses of the nitrate of bismuth, with minute portions of opium. The disturbance of the heart in this case was wholly functional, and disappeared with the enteritic symptoms.

* * * * * * * * * *

(The general course of the symptoms of acute dysentery, as it occurs in this section of the West, corresponds with the description given by authorities of intertropical dysentery. The disease sometimes occurs as an epiphenomenon in our climatic remittent fevers, and is, when complicated, amenable to the curative effects of quinine. We intended to detail cases, illustrating this complication, and, also, to remark at length upon the pseudo-periodicity which sometimes marks the febrile symptoms of this and other acute diseases in our locality. By pseudo-periodicity, we mean that in many acute diseases, remission of the febrile symptoms is observed in the morning, with their exacerbation at night, yet such periodicity is not amenable to the antiperiodic operation of quinine. These topics we are compelled to neglect for the present. We must, also, pass over the description of dysentery in the infant subject, certainly the most interesting portion of the subject we have last taken up. It would, very properly, occupy an entire chapter, and we find that we have not the opportunity of completing our details of it.)

* * * * * * * * * *

(We find it utterly impossible to complete our report according to the plan, and in the manner we originally intended, and are compelled to close it abruptly, offering some remaining matter, with little regard to its arrangement, and without elaborating our intended disquisitions upon it. Many of the topics that have been scarcely more than briefly referred to in previous pages, we intended to examine deliberately, before closing the report, and to enlarge our discussion of them. A prominent object we held in view from the beginning was, in concluding our report on the diseases of the four years, to sum up the facts presented, and trace out positively the relations between the diseases prevalent in each year, and meteorologic causes supposed to influence them, this being the topic that could be most satisfactorily elaborated from the materials we have on hand. We regret that time will not admit of our carrying out

our original intentions. Another topic we are compelled to neglect, is the treatment of the diseases referred to in the report. The brief notice we have accorded this topic in different pages, is very far from satisfactory to us, and, we are fully aware, will be less satisfactory to our readers. We have, we earnestly hope, presented material that will enable others, more competent than ourselves, perhaps, to fulfil the task of elucidating the obscure etiology of our sectional diseases. The material will at least serve for a comparison that will indicate the relative prevalence of important epidemics in our own and other sections of the Union. To gather this material, and arrange it, even in the imperfect form in which we present it, has consumed much time, more, indeed, than we anticipated; to burrow for weeks, like a mole, unconscious of the light, amid a dead heap of dry leaves of musty mortuary records, is a service requiring patient labor, and which, with us, has for months past admitted of not an idle hour. This task we have fulfilled to the best of our ability, according to the time at our command, and the circumstances. The quiet labor of it has become almost a thing of habit with us, and we now turn from it with regret—with regret that the results we promised ourselves in the beginning have been so imperfectly attained, and with still more regret that the subject was not originally committed to abler hands than ours. The task has served to while away many an hour of a valetudinary period of our life, that, but for it, might have been passed with less profit and less pleasure, and we give it up at the last moment, to make final arrangements to go in search of that which it has been our humble endeavor to preserve for others—health.—R.)

* * * * * * * * * *

Addenda.—Among the prevalent diseases of this year should be noticed those of the cerebro-spinal system, which were in excess during the extreme heats of the summer. The weekly mortuary tables of these in subjects of five years and under, are all that we have time to present on this topic. They will be found on another page.

SUNSTROKE.—This subject, interesting and memorable in St. Louis, from its great mortality during the excessively hot summer of this year, we can give but a brief passing notice.

A circumstance connected with it, is the disparity of opinion that exists among physicians as to its precise nature and treatment. This results from the fact that two different morbid conditions are

included in the title "coup-de-soleil;" in the one, the prominent symptoms are insensibility, with pallor of the general surface, cold and relaxed state of the skin, oppressed breathing, and enfeebled action of the heart and arteries; in the other form, there is insensibility, but it is unattended with the signs of direct exhaustion that exist in the first. In the former class, the most prominent lesion of function, as manifested by the symptoms, is in the organs of respiration and circulation; there is congestion of the lungs, with consequent congestion of the brain; in the latter, the most prominent lesion is manifested in the cerebral functions; there is congestion of the brain, with a resulting oppression of the general circulatory functions, but not direct exhaustion of the vital powers. In the former, the pallid face, oppressed breathing, cold extremities, and feeble state of the heart's action, attest the nature of the disorder, and indicate the remedies to be used; in the latter, the state of the pulse, which is indicative of an oppressed, but not a depressed condition of the circulation, with the reddened lips, the injected capillaries of the face, the labored circulation of the great vessels of the neck, evince a different pathological state from the first form. In cases of the former kind, the cold dash, stimulating frictions of the extremities, the free application of sinapisms, of dry cupping, and, when the power of deglutition returns, the exhibition of diffusible stimuli, are the measures best adapted to obviate the existing morbid state; when reaction recurs, a different order of remedies is required. The cases of the second form are those which have given rise to the opinion that the disease is an apoplectic condition, and that depletion is the proper remedy. The concurrent opinion of many physicians who witnessed the disease frequently in the last hot summer, and among whom are the most accurate of our medical observers, is, that the cases then presented were instances of exhaustion from heat, with congestion of the lungs at the prominent lesion; on the other hand, the number who contend that the disease is apoplectiform in its incipiency, and who succeeded in its treatment by depletion, is very small, and the number of cases they saw comparatively few. The cases of the disease that occurred in the last summer, were not all traceable to direct insolation; the furnace tenders in engine-rooms, and bakers unexposed to the sun, were sometimes attacked. One case is reported to us of a female who had not been out of the house during the entire of a very hot day, being attacked. The excessive mortality by "sunstroke," during the last summer, is shown in the table follow-

ing; the number of cases that then occurred, we have been unable to discover.

The *furunculoid epidemic* deserves more than a mere passing notice, yet we are compelled to give but a brief reference to its form. It is an interesting circumstance, that the first notable general presence of this disease in St. Louis, was in the summer of 1849, immediately on the decline of the cholera epidemic, which in that year visited this section of country for the first time since 1833 or '34. Its prevalence in the succeeding years, 1850, 1851, and 1852, was not as extensive as it was in 1849. In 1853, it did not prevail, but in the succeeding year, it was more generally distributed than in any year since 1849. Its dissemination was not limited to the city; in St. Louis County, it prevailed in the above years, and in 1854, it was generally distributed through St. Louis, and the adjoining counties of Franklin, Washington, St. Genevieve, St. Francois, and Madison. Of its existence in other portions of the State, we have no explicit information, although a few communications received by us imply its prevalence, by the fact referred to of the occurrence of non-febrile cutaneous eruptions in two of the summers of the years above named, and the remark is appended that these eruptions originated during, or immediately succeeding, the prevalence of cholera. Its occurrence in 1854, may be plausibly traced to the excessive heat of the summer, a view sustained by the fact that it was, in many cases, a supervention upon "lichen tropicus," to which almost every one was then subject. The most common form of the disease was the simple furuncle, which was distributed, in most cases, upon the nucha, the scapular regions, or on the buttock. In many subjects, the axilla was a favorite location of the eruption. This was the form most frequently superadded to "lichen tropicus." In many, however, the form of the disease was paronychia, which occurred generally without the lichen. In some cases, the disease was intermediate between furuncle and anthrax (furunculus anthracoides); in a few, it presented the signs of well-marked sloughing anthrax. In the cases of simple furuncle, which constituted the largest proportion of those presented each year, there was seldom any constitutional disturbance, except where the eruption was on the face, then the tension and œdematous swelling, extending to some distance around the tumors, would be distressing, and cephalalgia, with fever, attended. In axillary furuncle, which would at first be superficial, the adjacent lymphatics finally became involved, when constitutional disturb-

ance would be very marked. In some subjects, the disease was exclusively simple furuncle, detachments of three or four of which would be presented on the neck, perhaps; these would be subsiding, when another series would occur on the back, or on the front of the chest, or on the gluteal regions, or on the posterior or inner surface of the thighs. In others, furuncle would be limited to the body, while one or more paronychiæ would attack the fingers. In one subject, a German female, we incised an anthracoid furuncle, on the anterior aspect of the right forearm, Sept. 20, 1854. Within two weeks previously, she had been attacked successively with five paronychiæ on the annular and index fingers and thumb of the left hand, and the middle finger and palm portion of the right. In July, last year, we saw many cases at St. Genevieve, among negroes, where a majority of the fingers were in turn attacked by paronychiæ. At the Pilot Knob Iron Works, during August and September, more than one-third of the workmen were, for a time, disabled by these digital inflammations. The form of furuncle was common to both children and adults, that of paronychiæ, to adults alone. The period of the year to which the epidemic was limited, comprised the months of July, August, September. At the time of writing (May, 1855), the disorder exists to some extent in St. Louis, in company with detached cases of cholera, and of its congeners, diarrhœa and dysentery. Prevalent with these are, also, measles and scarlatina, sparsely distributed, and, in some notable instances, intercurrent, or rather interfused, one with the other, in the same subject; in addition, there is now just passing away, the lingering train of an outbreak of parotitis, which prevailed rather generally in the months of January, February, and March.

Erythema Papulata.—In the month of May, this disorder was somewhat generally distributed through the city, together with detached cases of scarlatina and measles. The first cases that occurred under our observation were all in one family, being the entire of the children of the household, two being whites and three blacks. We give a brief notice of these from our weekly record of cases.

May 11th. First cases of erythema papulata noticed by us were seen to-day. Other cases have been reported in the city. The cases in our practice are C. M., aged 11 years; her sister, aged three years, and three negro children, females, in the house, aged 13, 11, and an infant. May 19th. A. V. (female), aged 12 years, cousin of the first subject above named, attacked with erythema. The symptoms in all of these cases were the same. There was scarcely more

than malaise as the precursory symptom; febricula then occurred, and papulæ became apparent; the tongue was thinly coated with white fur; erythema affected the fauces and the surface. There was very slight tumidity of the tonsils and adjacent internal structures, with little swelling of the submaxillary glands. In the last-named case, A. V., these symptoms continued until the 24th May. The erythema, in this, as in other cases, was fleeting. It appeared on the 19th in this case; at one hour it would be fully displayed, at another, it would appear to fade and again reappear; it was most marked and persistent on the 22d and 23d, and disappeared on the 24th. It was principally distributed over the back and face, and but little over the trunk of the body or over the extremities. In the height of the disorder, the hand passed over the eruption received the impression of roughness, as in urticaria, and, at times, when the eruption temporarily faded, the erythema was like white urticaria, or that stage of the affection when the redness passes off, leaving a whitish, pallid buff eruption in elevated patches. Upon the erythema, papulæ were dispersed, small and pallid like the papulæ of miliaria, but broader at their base, and not presenting vesicles as in miliaria. The eruption, concisely described, consisted of irregularly sized patches of fleeting erythema with elevation of the surface, over which distinct pallid papulæ were scattered. We noticed no enlargement of the papillæ of the tongue in the disorder, nor yet catarrhal symptoms. The other cases we witnessed, presented the same succession of symptoms as the one described. The distinctive features of the disorder, when compared with scarlatina, were the fleeting character of the erythema, the non-coalescing state of the patches, the papula appearing before the efflorescence, the tongue not presenting the elongated red papillæ, the invariably mild character of the general symptoms, and the febricula and eruption being synchronous in their evolution. The last cases occurring under our notice were attacked May 30th, and presented the symptoms above described, except that diarrhœa was a complication. The cases previously noticed were unattended with diarrhœa. The subjects attacked were from 4 months to 14 years of age. Two cases, the female cousins of the subject whose case we have detailed, were attacked about May 26th, with the disorder which was then pronounced scarlatina; ten days later, both were attacked with well-marked anginose scarlatina, rather severe in its form. The diagnosis in these cases was pronounced by a disciple of Hahnemann.

JAUNDICE.—One of the marked peculiarities of the close of this year as regarded disease, was the unusual prevalence of jaundice. This was remarked chiefly in October and November. The case was simply cholæmia, scarcely of a febrile type, attended with loss of appetite, torpor of the bowels, pallid alvine dejections, vertigo and occasionally headache, and generally with slow pulse and fulness in the right hypochondrium. The disorder yielded readily to the usual remedies for it. At the meeting of the Medical Society, Dec. 9th, the unusual prevalence of the disorder was the subject of remark; 120 cases were then enumerated as occurring in the practice of the members present.

NURSING SORE-MOUTH.—Cases of this disorder were reported in St. Louis in December, 1854, and January and February, 1855. From information given us, we learn that the disorder was intractable, diarrhœa usually accompanied the stomatitis; in some cases there was tenderness of the præcordia, with other signs of subacute gastritis. Irritative fever was attendant on it, and, in some subjects, the secretion of milk was suspended. In all, anæmia and emaciation soon became more or less marked. These cases, which were somewhat numerous, are the first of the disease that we have ever known in St. Louis.

Progress of Cholera beyond the limits of St. Louis County.

Limited local irruptions of this disease were distributed far and wide in the different counties of the State in this year; but no general outbreak of the disease occurred, except at Jefferson City, in Cole County, and at Hermann, in Gasconade County.

Between the 15th and 23d of June, the disease prevailed at Independence, Jackson County, 30 deaths occurring in that week.

In Harrisonville and the vicinity, in Cass County, about 200 miles due west of St. Louis, near the western border of the State, it prevailed from July 1st to 24th. 28 died in the village, and 10 in the neighboring district.

Brunswick, in Chariton County, was visited by the disease at the same time as Independence.

In Richfield, a village in Clay County, an outbreak occurred in the last week in May; 14 deaths were reported in the one week, when the disease disappeared. At Lime Creek, Osage County, cases were reported in the early part of June.

The heaviest visitations in the interior, occurred in Jefferson

City and Hermann. The particulars of the outbreak at Jefferson we are unable to state, further than that the disease raged chiefly among the railroad laborers, during the month of June. The visitation at Hermann is referred to in the extracts from Dr. Nassee's communication, which we subjoin.

Scattering, but limited outbreaks of the disease occurred during July, in St. Genevieve, and the surrounding counties, on or near the Mississippi River; in short, it distributed itself in small detached outbreaks in nearly all the counties on the Mississippi and Missouri Rivers, during its greater prevalence in St. Louis.

Gasconade County.—The visitation of cholera in this section is referred to in the following extracts from a communication sent us by Dr. Nassee.

On the 7th of June, three immigrant families arrived at Hermann, from Germany, numbering 19 persons, all robust peasants. Being uncleanly in their habits, and intemperate, they appeared nevertheless to have well sustained their long sea voyage. On their arrival in Hermann, owing to the scarcity of tenements, seventeen were quartered in one room; and when thus domiciliated, they proceeded to unpack their clothing, and submit it to the needed process of washing, the first ablution it had received since the commencement of their voyage. Suddenly, on the 17th of June, and without any premonitory stage, malignant cholera broke out in these families; and in spite of every effort to prevent it, fourteen of the number died of the disease. Other cases appeared in quick succession through the town; and, as the epidemic advanced, out of 300 houses, in which there was a population of about 1300 souls, scarcely ten escaped a visitation. Towards the close of June, and in the early part of July, the disease became markedly intermittent, and was then less fatal. About this time, we indulged the hope that the disease would subside, but it renewed its attack with more vigor than before, and its results were the more fatal from the scarcity of medical aid, the physicians of the place, with one exception, being incapacitated by illness from attending to their service. The visitation had hitherto been confined to Hermann, but it now invaded the adjoining precincts in the county with such malignancy, that few recoveries occurred. It diminished towards the close of August, and entirely disappeared after a severe thunderstorm in September, excepting some cases amongst the laborers on the railroad.

As before remarked, the disease was in its start very malignant;

subsequently, it assumed an intermittent type, and then became more manageable. The symptoms were, as usual, coldness of the surface, oppression, anxiety, distress in the præcordia, copious purging of a whey-like fluid with flocculi mixed, vomiting of the same, the ejections being almost without effort. The countenance was senile, pale, and livid; the eyes were sunken and surrounded by dark rings; the skin became purple, or nearly black, and was shrivelled, doughy, inelastic and clammy; the lips and nails were purple or black; the tongue was pallid, cold, sometimes lead-colored, or as if covered with a layer of farina; the voice hoarse, low, and hollow (vox cholerica), respiration low and much oppressed, with frequent suspiration and great general anxiety; there were thirst and agonizing cramps of the extremities, with pulselessness, &c. These symptoms were more or less marked in all cases; their intermittent character was, in some, very marked.

My treatment was guided by the character of the individual cases. That which I found most efficient was the exhibition of an emetic of the oxymel of squills, selecting this by reason of its diuretic property. Should this fail to change the character of the matters vomited, I then gave the supercarbonate of soda, and ordered barley-water to be used freely as a drink. At the same time, I directed stimulating frictions, and the free application of mustard or capsicum generally, and the use of ice to the stomach. By these means the first storm was averted, the vomiting controlled, the alvine dejections became colored, the urine was secreted, respiration was less oppressed, and reaction occurred. But another paroxysm was to be apprehended, which it became a paramount object to avoid; to which end I directed quiniæ sulph. gr. xv, p. opii gr. v, p. camphor ʒij, in dos. xij; sum. dos. i, quâque horâ. These were given with the infusion of mint, and the succeeding paroxysm that threatened was thus usually anticipated. The subsequent treatment consisted of the exhibition of the aromatic bitters. This was the general treatment I adopted, which was occasionally modified to meet the exigency of particular cases.

It was remarked that females were predisposed to the epidemic, and particularly at the menstrual period; whereas, in the visitation of 1849, male subjects were more liable to the disease. The mortality from the disease was, in this year, greater among children than in 1849.

Dysentery.—"Cholera had scarcely disappeared, when dysentery broke out to an alarming extent. The symptoms usually

were tormina, tenesmus, chilliness, often protracted; in a short time the patient would become weak, pale, giddy, and anxious; the pulse would be small and frequent; the stools, *slimy* at first, afterwards became very frequent, sanguine and mucous; strangury and prolapsus ani were often observed." (The description of the disease given by Dr. N., is that of the malignant form of intertropical dysentery. The treatment he found most successful, was the exhibition at first of an emetic of ipecacuanha, followed by saline laxatives, the laxative preferred being the supertartrate of potash exhibited in demulcent drinks. He remarks: "I have often repeated the laxatives on the fifth and sixth days, allowing diluents in the interval. With this treatment, recovery was generally prompt, whereas the treatment by opium and other astringents, usually resulted in lingering recovery, if recovery occurred. Prior experience had taught me that opium in this disease is more hurtful than beneficial.")

* * * * * * * *

Mortality by Typhoid Fever in St. Louis, 1854.

Ages.	Jan.		Feb.		Mar.		Ap'l.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Total.		Aggregate both sexes.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
5 years and under	2	..	1	..	..	..	..	1	1	..	..	..	1	..	..	..	1	..	..	..	1	..	..	1	7	2	9
5 to 10 y'rs	..	1	1	..	..	1	..	..	3	1	1	..	..	..	2	..	..	..	..	1	1	..	..	1	8	5	13
10 " 20 "	..	2	1	1	..	2	..	2	..	..	..	..	2	3	1	4	1	1	2	2	1	1	..	..	8	18	26
20 " 30 "	1	1	1	..	1	..	7	2	3	1	3	2	10	2	7	6	8	1	3	2	3	3	2	..	49	20	69
30 " 40 "	..	..	4	..	1	..	3	..	5	1	2	1	6	1	7	3	3	..	2	2	2	..	2	1	42	9	51
40 " 50 "	1	..	..	..	..	..	1	..	..	..	1	2	..	..	3	..	4	..	1	..	1	..	1	..	13	2	15
50 " 60 "	1	1	2	..	2	..	1	..	..	..	1	..	1	..	1	1	1	1	2	..	1	..	..	..	13	3	16
60 and over	..	..	..	1	1	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	2	3	5
Total	5	5	10	2	5	3	13	5	12	3	8	5	20	6	21	14	23	4	10	7	10	5	5	3	142	63	204

Mortality by Typhus Fever in St. Louis, 1854.

Ages.	Jan.		Feb.		Mar.		Ap'l.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Total.		Aggregate both sexes.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
5 years and under	..	..	..	..	1	1	..	..	..	1	2	..	..	1	1	..	2	..	1	..	..	..	..	..	7	3	10
5 to 10 y'rs	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	3	3	6
10 " 20 "	..	..	..	..	1	..	..	..	3	..	1	..	..	..	1	1	1	..	..	1	..	1	..	..	7	3	10
20 " 30 "	..	1	..	..	..	1	..	..	3	2	1	..	5	3	..	..	1	1	3	1	..	..	2	1	15	10	25
30 " 40 "	1	..	2	..	..	..	1	..	..	..	..	..	1	..	3	1	1	1	3	..	1	1	1	..	14	3	17
40 " 50 "	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	1	2	4	6
50 " 60 "	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
60 and over	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	2
Total	1	1	3	1	3	4	1	2	7	3	4	..	6	4	5	3	5	2	8	2	2	2	6	2	51	26	77

Mortality by Bilious Fever in St. Louis, 1854.

Ages.	Jan.		Feb.		Mar.		Ap'l.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Total.		Aggregate both sexes.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
5 years and under	..	..	..	..	..	..	1	..	..	1	2	..	3	3	2	1	..	..	..	..	..	..	..	..	8	5	13
5 to 10 yrs.	..	..	..	..	..	..	..	..	1	..	..	..	..	1	2	..	1	..	1	1	..	..	..	..	5	2	7
10 " 20 "	..	..	..	..	..	..	..	..	..	..	1	3	..	2	1	1	..	1	..	..	..	..	1	..	3	7	10
20 " 30 "	..	..	..	..	..	..	..	1	1	1	2	2	6	2	4	5	7	2	..	..	2	1	1	..	23	14	37
30 " 40 "	2	1	..	..	..	..	..	..	..	..	4	..	5	2	8	1	7	1	1	1	..	..	1	..	28	6	34
40 " 50 "	1	..	..	..	..	..	..	..	..	..	..	1	2	1	1	..	2	2	..	1	1	..	2	..	9	5	14
50 " 60 "	..	..	..	..	..	..	..	..	..	..	1	..	1	2	..	..	..	..	1	..	..	..	..	..	3	2	5
60 and over	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1
Total	3	1	..	..	..	..	1	1	2	2	10	6	17	14	18	8	17	6	3	3	3	1	5	..	79	42	121

Mortality by Intermittent Fever in St. Louis, in 1854.

Ages.	Jan.		Feb.		Mar.		Ap'l.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Total.		Aggregate both sexes.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
5 years and under	..	..	..	..	..	..	..	1	..	..	2	..	2	1	1	..	..	..	1	1	1	..	..	..	8	2	10
5 to 10 yrs.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	2	..	2
10 " 20 "	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	1	3	4
20 " 30 "	..	..	..	..	1	..	1	..	..	..	1	..	1	1	2	3	1	1	2	1	..	..	..	..	9	6	15
30 " 40 "	1	..	..	..	..	..	..	..	..	..	2	..	..	..	4	..	..	1	1	..	1	1	..	..	9	2	11
40 " 50 "	..	..	1	..	..	1	1	..	..	.	..	..	1	..	1	..	1	2	..	..	..	..	..	..	5	3	8
50 " 60 "	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	4	..	4
60 and over	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	2	..	2
Total	2	..	2	1	1	1	2	1	..	..	5	..	4	3	10	3	5	5	4	2	4	1	..	..	40	16	56

In the above are included all reported under the term "congestive fever." The mortality by climatic fevers in this year falls much below that of other years.

Report of the Cases of Cholera among the Immigrants landed at Quarantine Island, St. Louis, 1854. By F. P. LEAVENWORTH, M. D.

Nativity of subjects.	Sex.	Age.	Date of arrival.		Date of discharge.		Form of disease.	RESULT AND REMARKS.
Bohemia	F.	27	Feb.	12	Feb.	12	Cholera	Died 2 hours after landing.
"	"	23		12		14	"	"
Germany	"	29		12		21	"	Recovered.
"	"	4		14	Mar.	8	Cholerine	Died. Father and mother, with 5 children, died on voyage up on the boat; one other recovered at quarantine.
Kentucky	M.	28		15	Feb.	18	"	Recovered.
Germany	"	22		15		22	Cholera	Died.
"	F.	48		15		16	"	"
"	M.	40		15		16	"	"
"	"	48		15		19	"	"
"	F.	5		15		16	"	"
"	"	35		15		21	"	Recovered. Delivered prematurely on 16th.
"	"	26		17		26	Cholerine	"
"	M.	12		19		22	Cholera	Recovered. Convalescing when discharged.
"	F.	34		21		21	"	Died. Survived 1 hour after admission. Delivered on 17th.
"	"	3		21		23	Cholerine	Died. Daughter of previous subject.
"	"	62		21		21	Cholera	Died in 2 hours.
"	M.	27		21		23	Cholerine	Recovered.
"	F.	22		24		24	Cholera	Died.
Denmark	"	29	Mar.	11	Mar.	13	"	"
"	"	41		11		12	"	"
"	"	35		11		16	"	" } Mother and son. } Mormon immigrants.
"	M.	9		11		12	"	"
"	F.	40		11		12	"	"
"	"	35		11		13	"	"
Germany	"	40		19		20	"	"
"	"	30		19	April	13	"	" of relapse. Miscarried March 21st.
"	"	9		19		13	"	Recovered. Daughter of foregoing.
England	"	13		31	Mar.	31	"	Died in 1 hour.
Wales	"	32		31		31	"	"
Ireland	"	28	April	10	April	14	"	"
N. Jersey	M.	14		12		17	"	" Father landed a corpse.
Penn.	"	6	May	10	May	10	"	"
"	"	42		6		12	"	" } One family.
"	"	4		10		14	"	"
Germany	"	15		6		11	"	" in consecutive fever.
"	"	13		6		7	"	"
"	F.	49		6		11	"	"
"	"	51		6		11	"	"
"	"	26		6		11	"	"
"	M.	3		6		8	"	"
"	"			6		6	"	" in 1 hour.
"	F.	26		8		11	"	"
England	"	27		7		7	"	"
"	"	47		8		8	"	"
Germany	"	20		10	June	20	"	Recovered.
"	"	56		10	May	11	"	Died.
"	"	8		10		10	"	" within 1 hour.
"	M.	3		10		12	"	" } Brother and sister.
"	F.	8		10		12	"	"
"	"	2		11		11	"	"
"	M.	46		11		11	"	Died.
"	"	17		11		17	"	Recovered.
"	"	14		11		11	"	Died.
"	"	50		11		19	"	"

Report of the Cases of Cholera among Immigrants at St. Louis—Continued.

Nativity of subjects.	Sex.	Age.	Date of arrival.	Date of discharge.	Form of disease.	RESULT AND REMARKS.
Germany	M.	37	May 11	May 17	Cholera	Died.
"	F.	5	11	21	"	Recovered.
Penn.	M.	8	13	13	"	Died.
Germany	"	21	14	16	"	"
Italy	F.	21	14	14	"	" in a few minutes.
England	"	13	15	15	"	" Was taken at quarantine, died in 5 hours.
"	"	27	16	16	"	Died.
"	"	49	16	17	"	" Son died of diarrhœa.
"	"	54	16	17	"	"
"	"	24	18	24	"	"
Italy	"	6	18	18	"	"
Germany	M.	25	June 8	June 11	"	Recovered.
"	"	32	8	11	"	" } Husband
"	F.	32	8	8	Cholerine	" } and wife.
"	M.	46	8	15	"	Recovered.
"	F.	29	8	6	Cholera	Died.
"	M.	3	8	4	"	"
"	"	52	8	8	"	" } Both of same
"	F.	21	8	8	"	" } family.
"	"	6	8	12	Cholerine	Recovered.
"	"	11	8	8	Cholera	Died.
"	M.	2	8	4	"	"
"	F.	30	8	8	"	"
"	M.	5	8	9	Cholerine	"
"	"	3	8	14	"	Recovered.
"	"	45	8	4	Cholera	Died. Father of foregoing.
"	F.	9	8	4	"	"
"	M.	21	8	4	"	"
"	"	6	8	5	"	"
"	"	47	5	10	Cholerine	"
"	F.	34	5	6	Cholera	"
France	M.	8	5	15	Cholerine	"
"	F.	43	5	11	Cholera	"
Germany	M.	14	5	5	"	"
"	"	34	8	8	"	" a few minutes after arrival.
France	"	28	8	8	"	" " " "
Germany	F.	46	8	8	"	"
"	"	35	8	11	"	"
"	"	55	8	11	"	"
"	"	26	8	12	Cholerine	Recovered.
"	"	34	8	10	Cholera	Died.
"	"	8	8	16	"	Recovered.
"	M.	25	8	11	"	Died.
"	"	18	8	13	Cholerine	Recovered.
"	"	34	8	10	Cholera	Died.
"	"	19	8	14	"	"
"	F.	48	8	8	"	"
"	M.	48	8	8	"	"
England	F.	23	10	18	Cholerine	Recovered.
"	M.	65	10	11	Cholera	Died.
Germany	"	50	10	19	Cholerine	Recovered.
England	F.	35	10	14	"	"
"	"	28	10	12	Cholera	Died.
"	M.	63	10	14	Cholerine	Recovered.
Germany	F.	21	10	18	"	"
"	"	23	10	14	"	"
"	"	33	10	14	"	"
"	"	20	10	14	"	"
"	M.	50	10	14	"	"
"	"	25	10	14	"	"
"	"	35	10	14	"	Died.
"	"	33	10	19	"	Recovered.

Report of the Cases of Cholera among Immigrants at St. Louis—Continued.

Nativity of subjects.	Sex.	Age.	Date of arrival.	Date of discharge.	Form of disease.	RESULT AND REMARKS.
Germany	M.	23	June 10	June 14	Cholerine	Recovered.
England	F.	32	12	July 21	Cholera	"
Germany	M.	10	11	June 15	"	" } Members of one family.
"	F.	6	11	12	"	Died. } Members of one family.
"	"	8	11	11	"	" } Members of one family.
"	"	8	11	11	"	" } Members of one family.
"	"	25	11	21	Cholerine	Recovered.
"	M.	25	11	20	"	"
"	"	16	11	24	"	"
France	"	6	11		Cholera	Removed by friends.
"	"	54	13	13	"	Died. Survived 1 hour after admission.
Germany	F.	40	15	17	"	Died.
"	"	48	15	18	"	"
"	"	25	15	21	Cholerine	Recovered.
"	M.	4	15	18	"	Died. Son of last.
"	"	40	15	25	"	Recovered.
"	"	54	15	26	"	Died.
"	"	54	16	17	"	Recovered.
"	"	40	16	29	"	"
"	F.	40	16	29	"	"
"	"	48	16	21	"	"
"	M.	4	16	21	"	"
"	"	29	22	July 6	"	"
France	F.	10	22	June 22	Cholera	Died.
England	"	38	25	26	Cholerine	" Delivered on 26th.
"	M.		25	27	Cholera	Died. Infant of foregoing. Symptoms well marked.
"	F.	8	28	28	"	Died. Same family as last.
"	M.	6	28	July 2	Cholerine	Recov'd. " " } Attacked after landing.
"	F.	2	29	June 30	Cholera	Died. " " } Attacked after landing.
"	M.	5	28	28	"	"
"	F.	64	29	29	"	"
"	M.	54	29	July 19	"	Recovered.
Ireland	F.	30	July 8	11	Cholerine	"
Germany	M.	40	8	12	"	"
"	F.	84	6	6	Cholera	Died.
"	"	44	6	15	"	Recovered.
"	"	23	6	13	"	"
"	M.	54	6	15	"	"
"	F.	27	12	23	Cholerine	"
"	M.	27	12	17	"	Died.
"	"	40	12	20	Cholera	"
"	"	34	Aug. 31	Sept. 5	"	" } Disease succeeded intermittent fever.
"	F.	36	31	5	"	" } Disease succeeded intermittent fever.
						Foregoing were husband and wife. Their two children were admitted, one a corpse, the other laboring under intermittent fever.
"	M.	30	Sept. 6	8	"	Died.
Ireland	"	11	Oct. 8	Oct. 8	"	"
Germany	"	23	31	31	"	"
Ireland	"	35	Nov. 4		"	Died on S. B.
"	F.	28	5	Nov. 8	"	Died.[1]
Illinois	"	42	16	18	"	"
Germany	M.	19	16	25	"	Recovered.
"	"	50	28	28	"	Died.
"	"	57	Dec. 1	Dec. 6	Cholerine	Recovered.
"	"	24	1	6	"	"
Ireland	F.	20	6	9	Cholera	Died.
Germany	"	21	16		"	Recovered.

[1] This subject miscarried.

Report of the Cases of Diarrhœa and Dysentery among the Immigrants at Quarantine, St. Louis, 1854.

Nativity of subjects.	Sex.	Age.	Date of arrival.	Date of discharge.	Form of disease.	RESULT AND REMARKS.
Bohemia	F.	2	Feb. 12	Feb. 12	Diarrhœa	Died.
Germany	"	1	12	16	"	"
"	"	30	12	21	"	" of phthisis. Delivered at Q.
"	M.	47	21	28	"	Recovered.
Ireland	"	66	Mar. 20	22	"	"
Wales	"	5	31	April 2	"	Died. Mother died of cholera, March 31.
Germany	"	19	April 29	May 3	"	Recovered.
"	"	33	May 2	8	"	"
"	"	30	2	11	"	Died.
England	F.	28	5	10	"	Recovered. } Mormon immigrants.
"	"	21	5	10	"	"
"	M.	44	5	10	"	"
"	F.	34	5	10	"	"
"	M.	28	5	10	"	"
"	"	3	8	11	"	Died.
Switzerland	F.	10	7	10	Chronic diarrhœa	"
"	M.	57	7	10	Diarrhœa	Recovered. Father of previous subject.
Pennsyl'nia	"	2	11	12	"	Died. } Of one family.
"	F.	13	13	30	"	Recovered.
England	M.	16	16	20	"	"
"	"	6	18	28	"	"
Italy	"	53	19	21	"	"
Germany	"	2	20	21	"	"
"	F.	29	22	30	"	" Aborted on 22d.
Maine	M.	22	24	30	"	"
Germany	"	5	28	30	"	"
"	F.	38	June 4	June 14	"	"
"	M.	25	3	8	"	"
"	"	52	5	8	"	"
France	"	35	5	6	"	"
Germany	F.	3	8	18	"	"
"	M.	2	8	10	"	Recovered. } Of same family.
"	F.	3	8	9	"	Died.
England	"	60	12	14	"	Recovered.
"	"	12	28	29	"	" } Of one family.
"	"	6	28	29	"	"
"	"	4	28	29	"	"
Germany	M.	33	Aug. 28	Sept. 15	"	"
Ireland	F.	5	Oct. 8	Oct. 12	"	"
Germany	M.	26	15	23	Dysentery	Died.
"	"	13	Nov. 7	Nov. 9	Diarrhœa	Recovered.
"	F.	16	Dec. 1	Dec. 6	"	" } All of one family.
"	M.	10	1	6	"	"
"	F.	8	1	6	"	"
"	M.	32	8	12	"	"

General Report of the Cases of Disease among Immigrants at Quarantine, St. Louis, in 1854, *not included in previous statements.*

Nativity of subjects.	Sex.	Age.	Date of arrival.	Date of discharge.	Form of disease.	RESULT AND REMARKS.
Germany	F.	30	Feb. 12	Feb. 21	Phthisis	Died.
"	"	30	21	Mar. 17	Cystitis	Recovered. Aborted, March 2.
U. States	M.	25	28	18	Remittent fever	" (By remittent, in this and other reports, is meant bilious fever.)
Germany	"	25	28	April 4	Typhus fever	Recovered.
U. States	"	25	28	Mar. 24	Rheumatism	"
England	"	7	May 14	May 18	Typhoid fever	" Convalescent on arrival.
Ireland	F.	7	31	Aug. 28	Typhus fever	"
England	M.	35	June 1	July 1	Scorbutus	"
U. States	"	47	1	June 12	Dropsy	Died.
England	"	42	8	14	Intermittent fever	Recovered.
Germany	"	28	20	27	Typhoid fever	Died.
"	"	33	20	July 2	"	Recovered.
"	"	23	21	June 30	Remittent fever	"
Ireland	"	40	25	30	Intermittent fever	"
Germany	F.		July 6		Variola	Removed to Smallpox Hospital.
"	"		6		"	" "
Virginia	M.	40	Aug. 15	Aug. 25	Yellow fever	Recovered.
Ireland	"	28	19	25	Intermittent fever	"
Germany	"	28	24	25	Fever	Died.
"	"	42	31	Sept. 16	Intermittent fever	Recovered. } Of one family, complicated with diarrhœa.
"	"	38	31	16	"	" }
"	F.	3	31	4	"	Died. }
"	M.	34	31	5	"	Died of cholera supervening.
"	F.	36	31	5	"	" " wife of last.
"	M.	10	Sept. 6	16	"	Recov'd. Child of last couple.
"	F.	5	4	16	"	Recovered. Complicated with diarrhœa.
Ireland	M.	23	6	8	"	Recovered.
England	"	19	6	8	Yellow fever	Died.
Scotland	"	25	9	Oct. 3	Remittent fever	Recovered.
Illinois	"	25	19	Sept. 19	Fever	Died.
Hungary	"	37	20	Oct. 7	Yellow fever	Recovered.
Germany	"	4	27	25	"	"
Ireland	"	35	Oct. 4	4	"	Died.
"	"	45	12	15	Remittent fever	"
Ohio	"	11	14	Nov. 2	"	Recovered.
Ireland	"	22	15	Oct. 17	"	" Convalescent on arrival.
U. States	"	23	25	Nov. 15	"	Recovered.
Ireland	"	29	28		Fracture	Removed to City Hospital.
Germany	"	4	31		Variola	" Smallpox Hosp.
Missouri	"	30	Dec. 13	Dec. 14	Chagres fever	Died. Returned Californian.
Germany	F.	16	13		Typhoid fever	Recovered. Convalescent.
Ireland	M.	A	dult 14		Variola	Removed to Smallpox Hosp.
Negro	"	"	19		"	" "

The term *cholerine*, as used in the foregoing reports, is applied to cases in which the tendency to collapse is not very rapid or intense. It is, strictly, cholera, except insomuch as the tendency to death is not imminent. We suspect that the generality of cases of cholera

reported as cured, in localities beyond quarantine, are such as those to which we have applied the term cholerine.

Of the yellow fever cases above reported, but three had black vomit; all reported had exudation of dark blood from the mouth or nostrils. The cases of "remittent fever" reported mean ordinary bilious fever. The cases of Californian emigrants noted as remittent or Chagres fever, were of disease contracted in crossing the Isthmus, a low form of remittent, but without sordes or typhoid appearances, other than debility or hebetude. The subjects would sink gradually, almost without complaint.

The entire report for the year, as to quarantine, shows how completely one epidemic disease, and its congeners, will prevail to the exclusion of other diseases.

During this year, 24 corpses were landed on the island from different boats.

The following communication is from S. Pollak, M. D., Attending Physician at the Belcher Dispensary. We are compelled to omit the detailed register, to which Dr. P. refers:—

"In compliance with your request, I furnish you with an abstract of the register of cases of the Belcher Dispensary for 1854.

"The Belcher Dispensary was established in February, 1849, for the exclusive use of the operators of the "St. Louis Steam Sugar Refinery" of Belcher & Bro. Only the operators who continue at work, are entitled to its benefits; absentees from their post are excluded.

"I sincerely regret not having kept a regular journal from the beginning. I only had small memorandums, wherein I entered, daily, all applicants; noted the diagnosis, age, treatment, etc., with pencil; but only with the view to assist my memory. These notes were intelligible, and of utility only to myself. Some of them are yet on hand, but more are missing. They are greatly defaced, stained, and not in regular succession, so that I cannot give any reliable data from them. This year I have got a regular register, with columns for name, date, age, birthplace, diagnosis, treatment, and remarks. It is carefully and conscientiously kept, and, at a glance, all statistical data can be obtained. Next year I contemplate appending a meteorological register, and a column for the length of residence in the United States, of respective patients. I will keep the register yet a few days in my office, subject to your inspection, if desirable.

"You will find that 1,694 patients have been treated in the

Belcher Dispensary in 1853 and 1854, as per register. Not a case of death has occurred among them. This is not stated in a spirit of boasting, but as the necessary result of the rules of the institution, as only such applicants are registered who are able to continue work. That of the absentees some died, you can readily imagine; but, as stated, among the registered cases no death occurred. With but few exceptions, the result of treatment was generally favorable. Some of the chronic cases were only palliated, some radically cured. Of the acute cases, nineteen-twentieths were cured; only very few left to seek medical aid elsewhere.

"One important fact I succeeded to establish, in that charity, beyond any cavil or doubt, and that is the almost specific effect of sulphuric acid in all cases of diarrhœa. I say in *all* cases of diarrhœa, and in diarrhœa only, for I hold it is less reliable and even frequently injurious in dysentery.

"The register shows that, in 1854, 374 cases of diarrhœa were prescribed for, of which 302 were cured by the sulphuric acid alone, with the exception of some adjuvant and corrigent, such as simple syrup, aromatic tincture, or camphor water. With the other cases, the sulph. acid had to be ultimately resorted to; but it was preceded by some mild cathartic, to clean out the primæ viæ, such as hyd. cum cretâ, rheum, ol. ricini, and then followed up with the sulph. acid. Opium, such as in pulv. Doveri, was only given when combined with any of the above-named cathartics, but never otherwise.

"The majority of cases were cured in 24 to 48 hours; few required the use of it for four days, and only a very small number took it as long as eight days; they got nothing else, and were cured.

"I here boldly declare that, according to my experience, sulphate of quinia does not more certainly arrest an attack of intermittent fever than the sulphuric acid an attack of diarrhœa. I found it equally efficacious in all stages of the disease, both acute and chronic; in all ages and sexes, abundant evidence of it I had in my private practice.

"I intend here to limit myself merely to a report of the operations of the Belcher Dispensary. Were I permitted to draw upon the note-book of my private practice—and I dare not withhold the fact—I could successfully prove that in the much and justly dreaded summer-complaint of children, in cholera infantum it is much preferable to the mercurial, chalk, astringent, and opium treatment; it is even more rapid and more positive in its effect with children than with adults.

"Also in *cholera asphyxia*, I found it more efficacious and more prompt in its action, than any other remedy I ever tried or heard of. It answered all my expectations and all my purposes, up to the state of collapse; when, it is generally conceded, it is a mere chance, if a patient gets over it.

"The usual dose with me for adults, was ʒss of the acidum sulphuricum aromaticum every 4 hours, 4–8 doses generally sufficed to effect a cure. The following is my almost stereotyped formula: ℞.—Acid. sulph. arom. ʒss; tinct. cardamomi comp. (or sp. lavandulæ comp.), syrupi simpl., āā ʒi. S.—Every 2 hours 2 tablespoonfuls. If there be tormina, feeble pulse, general prostration, I added aq. camphoræ ʒj, and gave it in shorter intervals.

"The first dose is almost invariably ejected, probably from its suddenly astringing the stomach. I then ordered iced water to drink *ad libitum*, in order to soothe and distend mechanically the stomach; had the dose repeated immediately, and have never seen it returned afterwards.

"The gratification of the patient in being permitted, nay ordered to drink much cold water, is alone sufficient to recommend it to general favor, both with physician and patient.

"Without pretending to give the rationale of the action of the sulph. acid, I may be permitted to say, that I presume it acts more, if not chiefly, by increasing the tone of the mucous membrane of the alimentary canal, and not merely by astringing its pores. It appears to produce rapidly a tonic, astringent, and alterative effect. The patient rallies soon, the evacuations of the bowels diminish in frequency and improve entirely in character.

"The light-colored watery evacuations are mostly checked after the 3d or 4th dose, and bilious, more consistent fecal stools take their place; and not rarely were the bowels constipated for the next 2–3 days, and required a dose of oil to be relieved.

"On some future occasion, I will attempt to detail a few cases, selected from the Register and my note-book.

"To find a substitute for the costly sulphate of quinine in intermittent fevers, has greatly engrossed my attention. I did not allow the opportunity of experimenting to escape, which was offered me in the Belcher Dispensary, where cases of intermittent fever were prescribed for in 1854; when it is generally admitted that intermittent fevers were less prevalent, by at least 50 to 75 per cent., than in preceding years.

"In 1853, I tried effectually cinchonine, quinoidine, piperine,

salicine, strychnine and arsenic, and found them wanting. It is true, that any one of these, or a combination of them, arrested attacks of intermittent fever, but it required a much longer time, and very large doses, and even then it was not always effectually done. The two objects I mainly aimed to attain, saving of time and expense, I failed in. Indeed, the quantity given of any of those remedies—arsenic and strychnine excepted—was so large, never less than ʒj and sometimes as much as ʒij, was as costly as ʒss of sulph. of quinine, and never so satisfactory in its result. There will, in my opinion, never be a surrogate of sulph. quinine, when the latter can be got. They must answer, when the stock of sulph. quinine should happen to be exhausted, as it often occurs in the western country, when no alternative is left.

"I did not carry my experiments, either with the arsenic or strychnine, far enough to justify a decided opinion. These drugs are entirely too deleterious in their effect; and not having the patients under my immediate observation, I refrained giving it, but in a few instances, and I was most wofully disappointed in my expectation.

"In the course of last summer, I read in some medical journal of the success met with by some eminent physician in Ohio, with the use of the nitric acid in intermittent fevers: I determined at once upon trying it myself. Only 23 cases of intermittent fever have come under my observation since then, and in all but one, it fully corroborated the statements of the Ohio practitioner.

"I sometimes preceded it with an emetic or cathartic, according to indications, and then gave the concentrated nitric acid, 5–6 drops, with some mucilage every two hours, until 60 drops were taken. It not only prevented the recurrence of the paroxysm, but I have not seen a return of the intermittent fever with any of them, although 4–6 weeks have elapsed since, and although several have had regular bi-weekly relapses for the last few months. It may be that the mildness of the type this year may have contributed to this result. As stated, I have not seen but one case to fail. It was prompt and decisive. In one instance, especially, I had only six hours to go upon; the patient had lived almost on quinine for the last year; it made him both deaf and poor, and withal he had regular returns every fortnight. He took 10 drops every hour, and no appearance of the paroxysm, and now six weeks have passed and no relapse, just three times as long a period of relief as he ever had since his first attack. The medicine cost five cents.

"I will continue my experiments, and trust others will do so likewise.

Respectfully,
Your obedient servant,
S. P."

"P. S. Accompanying this is a specified list of the 1694 cases treated in the Belcher Dispensary, in 1854, and an abstract of the Register of such cases as have an especial bearing upon the epidemics and endemics of this country. This extends only back to Sept. 16, 1853."

Weekly Meteorological Table for St. Louis, from April 3 to October 1, 1854. From observations by GEORGE ENGELMAN, M. D.

1854. WEEK FROM	BAROMETER—CORRECTED FOR TEMPERATURE. IN ENGLISH MEASURE.						
	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Lowest.	Highest.
April 3 to April 9	29.502	29.508	29.431	29.431	29.467	29.072	29.788
" 10 to " 16	29.373	29.402	29.373	29.408	29.388	29.133	29.562
" 17 to " 23	29.382	29.413	29.318	29.340	29.363	29.166	29.625
" 24 to " 30	29.423	29.452	29.398	29.428	29.425	28.897	29.879
May 1 to May 7	29.467	29.486	29.397	29.401	29.438	29.241	29 564
" 8 to " 14	29.272	29.289	29.214	29.225	29.250	28.932	29.456
" 15 to " 21	29.291	29.318	29.299	29.294	29.300	28.737	29.578
" 22 to " 28	29.389	29.406	29.340	29.335	29.367	29.068	29.631
" 29 to June 4	29.408	29.438	29.387	29.408	29.409	29.125	29.650
June 5 to " 11	29.349	29.388	29.363	29.376	29.368	29.122	29.538
" 12 to " 18	29.401	29.415	29.374	29 375	29.391	29.289	29.483
" 19 to " 25	29.416	29.414	29.406	29.388	29.406	29.244	29.547
" 26 to July 2	29.457	29.487	29.420	29.423	29.447	29.231	29.576
July 3 to " 9	29.473	29.500	29.419	29.402	29.448	29.319	29.599
" 10 to " 16	29.547	29.567	29.507	29.518	29.535	29.403	29.678
" 17 to " 23	29.487	29.507	29.420	29.460	29.468	29.305	29.629
" 24 to " 30	29.486	29.520	29.439	29.469	29.479	29.229	29.667
" 31 to Aug. 6	29.505	29.548	29.446	29.472	29.493	29.322	29.592
Aug. 7 to " 13	29.430	29.478	29.409	29.419	29.434	29.310	29.608
" 14 to " 20	29.523	29.555	29.475	29.491	29.511	29.378	29.605
" 21 to " 27	29.523	29.555	29.475	29.491	29.511	29.466	29.614
" 28 to Sept. 3	29.501	29.539	29.438	29.461	29.485	29.414	29.569
Sept. 4 to " 10	29.403	29.432	29.345	29.364	29.386	29.156	29.569
" 11 to " 17	29.539	29.557	29.497	29.531	29.531	29.228	29.758
" 18 to " 24	29.642	29.660	29.566	29.590	29.614	29.295	29.920
" 25 to Oct. 1	29.476	29.494	29.424	29.465	29.465	29.247	29.661

Weekly Meteorological Table for St. Louis—Continued.

1854. WEEK FROM	OPEN AIR THERMOMETER. FAHRENHEIT.							DIFFERENCE OF DRY AND WET BULB THERMOMETERS. FAHRENHEIT.						
	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Lowest.	Highest.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Lowest.	Highest.
April 8 to April 9	52.6	62.1	68.6	58.1	60.3	38.5	81.0	3.2	7.7	10.4	5.9	6.8	0.5	18.0
" 10 to " 16	42.6	48.3	52.9	45.9	47.4	34.0	66.5	2.4	4.1	6.4	3.3	4.0	1.0	12.5
" 17 to " 23	52.6	62.9	75.6	62.7	63.4	31.5	84.0	2.9	7.8	14.4	6.5	7.9	1.0	18.5
" 24 to " 30	52.1	59.9	66.6	54.5	58.3	34.0	88.5	3.4	6.2	11.1	5.1	6.4	0.5	21.5
May 1 to May 7	51.7	63.7	75.5	61.6	63.1	45.0	85.0	4.4	10.2	17.3	7.9	10.0	2.5	19.5
" 8 to " 14	57.1	68.0	76.1	65.7	66.7	51.0	85.0	5.4	8.9	12.9	5.4	8.1	0.5	18.0
" 15 to " 21	56.2	64.2	71.7	61.6	63.4	52.0	81.0	2.8	7.1	12.2	5.4	6.9	1.0	17.0
" 22 to " 28	68.4	71.4	79.2	68.4	70.6	56.5	83.5	1.9	5.9	9.8	2.4	5.0	0.0	14.5
" 29 to June 4	63.5	74.4	78.6	68.4	71.2	58.0	83.0	2.0	7.5	11.2	3.7	6.1	1.0	14.0
June 5 to " 11	59.3	66.6	72.3	61.6	64.9	49.0	86.0	2.1	6.9	9.9	3.0	5.5	0.5	14.5
" 12 to " 18	66.3	78.0	86.4	74.4	76.3	61.0	90.0	2.3	8.6	14.5	5.4	7.7	1.5	17.5
" 19 to " 25	71.3	83.0	87.4	77.4	79.8	64.0	93.5	2.8	9.5	13.6	4.7	7.6	0.5	19.0
" 26 to July 2	78.0	88.6	95.6	84.2	86.6	76.0	98.0	3.2	10.0	15.1	6.1	8.6	2.5	19.0
July 3 to " 9	76.6	85.4	90.8	79.2	83.0	68.5	98.5	3.1	8.6	10.6	4.4	6.7	1.0	17.0
" 10 to " 16	68.0	81.1	89.4	76.7	78.8	58.0	96.0	3.3	10.1	17.0	7.0	9.3	2.5	19.0
" 17 to " 23	76.1	89.6	95.8	81.6	85.8	70.5	100.5	3.4	10.0	18.9	7.1	9.9	2.0	24.0
" 24 to " 30	74.0	84.6	94.9	80.5	83.5	66.0	101.0	6.1	11.3	21.0	9.6	12.0	3.5	24.5
" 31 to Aug. 6	75.1	87.1	95.9	80.6	84.7	63.5	101.0	5.5	13.4	22.5	8.3	12.4	2.5	27.5
Aug. 7 to " 13	69.4	77.6	87.2	75.1	77.3	58.0	98.5	3.9	8.3	14.3	7.1	8.4	3.0	19.5
" 14 to " 20	67.4	76.4	87.1	74.1	76.2	61.0	98.0	4.1	8.9	16.1	7.1	9.0	1.0	21.5
" 21 to " 27	73.4	85.1	90.6	79.6	82.2	69.5	96.5	3.5	11.4	15.8	7.9	9.6	2.0	21.5
" 28 to Sept. 3	79.6	88.5	98.1	83.4	87.4	75.0	100.5	4.4	11.9	21.6	9.5	11.8	2.5	26.5
Sept. 4 to " 10	74.5	82.4	88.6	77.5	80.7	68.5	99.5	4.9	9.6	14.9	6.6	9.0	3.0	24.5
" 11 to " 17	64.5	72.1	81.3	68.6	71.6	53.0	93.5	2.6	6.2	11.4	3.9	6.0	1.0	16.5
" 18 to " 24	59.9	68.3	76.6	63.7	67.1	52.0	85.0	3.3	6.6	11.5	4.9	6.6	1.5	17.0
" 25 to Oct. 1	67.3	75.9	86.3	72.6	75.5	65.0	90.0	3.4	7.0	14.7	4.9	7.5	1.0	18.0

Weekly Meteorological Table for St. Louis—Continued.

1854. WEEK FROM	RELATIVE HUMIDITY.							CLEARNESS OF SKY.					NO. OF DAYS.		
	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Lowest.	Highest.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Fair.	Variable.	Overclouded.
April 3 to April 9	77	58	47	66	62	27	96	4.4	5.9	5.6	5.6	5.4	2	4	1
" 10 to " 16	82	70	60	75	72	34	98	2.6	3.0	2.3	5.6	3.4	1	3	3
" 17 to " 23	80	57	39	64	60	27	94	6.4	7.0	6.6	8.0	7.0	4	3	
" 24 to " 30	78	64	47	68	64	25	97	6.9	6.3	6.6	6.4	6.5	4	3	
May 1 to May 7	70	47	29	56	50	24	83	7.1	6.0	9.0	7.4	7.4	4	3	
" 8 to " 14	72	57	47	71	62	28	97	6.6	7.7	6.1	6.6	6.9	3	4	
" 15 to " 21	82	63	46	70	65	27	98	5.0	6.4	5.3	5.7	5.6	4	2	1
" 22 to " 28	89	72	59	88	77	40	100	2.7	2.7	3.1	5.6	3.5		7	
" 29 to June 4	89	66	54	81	72	46	95	6 4	6.6	5.0	5.9	6.0	2	5	
June 5 to " 11	87	65	56	82	72	45	97	3.4	2.4	2.6	5.3	3.4		6	1
" 12 to " 18	88	64	47	75	68	38	92	6.6	7.1	6.6	8.1	7.1	5	2	
" 19 to " 25	86	62	51	82	70	37	97	8.3	8.4	7.1	9.3	8.3	6	1	
" 26 to July 2	85	65	50	75	69	40	89	8.3	9.0	7.0	9.0	8.3	6	1	
July 3 to " 9	85	66	59	81	73	46	95	7.3	7.9	5.1	8.0	7.1	5	2	
" 10 to " 16	83	59	41	69	63	38	86	8.4	9.1	9.1	9.9	9.1	7		
" 17 to " 23	84	62	40	70	64	30	91	9.0	8.0	7.7	6.3	7.7	5	2	
" 24 to " 30	71	56	34	60	55	28	83	7.7	9.3	8.3	9.7	8.7	6	1	
" 31 to Aug. 6	74	51	31	65	55	25	88	7.9	7.6	5.7	7.7	7.2	4	3	
Aug. 7 to " 13	80	64	49	68	65	32	85	5.1	5.4	5.6	7.1	5.8	2	5	
" 14 to " 20	79	60	43	67	62	31	95	6.7	7.0	7.4	8.1	7.3	4	3	
" 21 to " 27	84	56	47	72	65	32	91	5.6	7.1	4.7	7.9	6.3	3	4	
" 28 to Sept. 3	80	57	34	62	58	22	88	9.7	8.9	8.3	9.7	9.1	7		
Sept. 4 to " 10	77	61	49	71	64	29	85	8.3	7.6	7.9	6.9	7.7	4	3	
" 11 to " 17	84	71	55	80	72	40	94	4.4	4.7	6.1	8.0	5.8	2	5	
" 18 to " 24	80	66	50	73	67	31	92	5.1	5.1	6.0	8.0	6.0	3	4	
" 25 to Oct. 1	82	69	47	77	69	38	94	6.7	7.4	5.7	7.7	6.9	5	2	

Weekly Meteorological Table for St. Louis—Continued.

1854. WEEK FROM	RAIN. Days.	RAIN. Hours.	RAIN. Quantity.	THUNDER-STORMS.	WINDS DURING WEEK.
April 3 to April 9	1	11	0.45 ins.		S.E. 2 3 2, S.W. 2, N.W. 2, S.E. 2, S.W. 4 5.
" 10 to " 16	3	47	1.85	1	N.W. 3, S.E. 2, E. 2, N.W. 2 3, N. 3 2.
" 17 to " 23	1	1	0.10	1	N. 2, S.E. 2, S. 2, S.W. 3 2, S.E. 2, E. 2.
" 24 to " 30	3	11¼	5.20	3	S.E. 3, W. 2, N.W. 4 3, N. 4 2, N.W. 2.
May 1 to May 7	1	1	0.05		S.W. 2, N.W. 3, W. 2, S.W. 2, N.E. 2, E. 2.
" 8 to " 14	3	12¾	3.33	4	S.E. 2, N.W. 3, S.E. 2, E. 3 4, W. 2.
" 15 to " 21	2	4½	1.08	2	S.E. 2 4, S.W. 4 5, W. 3 2, S.W. 2, W. 2.
" 22 to " 28	5	13¼	0.34		E. 2, S.E. 2.
" 29 to June 4	2	3	1.50	2	S.E. 2, N.E. 2 3, S.E. 2.
June 5 to " 11	2	4	0.43	1	S.E. 2, W. 3 4, N.E. 2, S.E. 2, N.W. 2.
" 12 to " 18	2	3	0.40	1	W. 3, N.E. 2, S.E. 2, N.W. 2, N.E. 2.
" 19 to " 25	1	3½	2.38	2	S.E. 2, N.W. 3, W. 3, S.W. 2, W. 2 3.
" 26 to July 2			0.00		S.W. 2 3, S.E. 2, S.W. 2.
July 3 to " 9	3	3	0.62	2	S. 2, S.W. 2, S.E. 2, S. 2, S.W. 2, N.W. 3.
" 10 to " 16			0.00		N.W. 3, N.E. 2, S.E. 2, S. 2.
" 17 to " 23			0.00		S. 2, S.E. 2, W. 3, N.W. 2.
" 24 to " 30	1	¾	0.30	1	S.E. 4, N.W. 4 2, N.E. 2, S.E. 2, W. 3, S.E. 3.
" 31 to Aug. 6			0.00	1	S.W. 3, S.E. 2, W. 4, N.W. 3, N.E. 2 3.
Aug. 7 to " 13	1	3	0.07		N.E. 3 4, S.E. 2, S.W. 2, W., N. 2.
" 14 to " 20	1	3½	1.18	1	N.E. 2, N.W. 3, N.E. 2, S.E. 2.
" 21 to " 27	1	1	0.55	1	S.E. 2, E. 3, S.E. 2, S.W. 2.
" 28 to Sept. 3			0.00		E. 3, S.W. 2, S.E. 2, S. 2.
Sept. 4 to " 10	1	½	0.20	1	S.E. 2, S.W. 2 3, N. 3, S.W. 3 2, W. 3 4, N.W. 2.
" 11 to " 17	4	8	0.94	3	W. 3, N.W. 2, N.E. 2, N.W. 3 2, N.E. 3 2.
" 18 to " 24	2	4½	0.80	1	S. 2 3, N.W. 3 2, N.E. 3, S.E. 2.
" 25 to Oct. 1	1	¼	0.03	1	S.E. 3 2, N.W. 2, N. 2, E. 2, S. 2.

Point of observation: Corner of Elm and Fifth Streets.

Position of barometer: 76 feet above City Directrix.

Scale of winds: 1, light breeze; 2, ordinary wind; 3, high wind; 4, gale; 5, violent gale.

(*Vide* notes to daily tables.)

Statement of the Weekly Mortality in St. Louis during six Months, from March to October, 1854.

Week ending Sunday	Weekly aggregate of all ages.	Total of 5 years and under.	Total by intestinal diseases.	Total by climatic fevers.	Total by continued fevers.
April 9 . . .	90	34	29	1	5
" 16 . . .	104	36	43	3	7
" 23 . . .	88	38	26	...	8
" 30 . . .	86	32	37	1	1
May 7 . . .	91	38	29	...	6
" 14 . . .	101	42	59	1	5
" 21 . . .	131	43	75	3	7
" 28 . . .	90	30	38	...	7
June 4 . . .	105	41	54	2	6
" 11 . . .	161	69	104	1	3
" 18 . . .	174	75	98	2	5
" 25 . . .	256	118	157	7	3
July 2 . . .	472	209	280	19	4
" 9 . . .	505	212	279	10	7
" 16 . . .	288	140	184	8	7
" 23 . . .	297	139	144	8	11
" 30 . . .	232	138	104	3	8
Aug. 6 . . .	299	126	108	15	17
" 13 . . .	184	107	65	9	2
" 20 . . .	165	98	60	7	8
" 27 . . .	173	88	78	7	11
Sept. 3 . . .	224	90	88	6	8
" 10 . . .	170	91	54	10	13
" 17 . . .	118	67	38	4	3
" 24 . . .	136	59	40	9	6
Oct. 1 . . .	115	58	35	4	7

Statement of the Daily Mortality by Cholera, Diarrhœa, Dysentery, Cholera Infantum, and "Sunstroke, in St. Louis, in 1854, from March to October.

	Cholera.	Diarrhœa.	Dysentery.	Cholera infantum.		Cholera.	Diarrhœa.	Dysentery.	Cholera infantum.
April 3	3	...	...	1	May 1	4	1	...	...
4	1	1	...	...	2	2	...	...	1
5	2	3	1	...	3	4	...	1	...
6	7	...	...	...	4	3	...	...	...
7	2	...	...	...	5	2	...	...	...
8	3	3	...	...	6	3	...	1	...
9	1	1	...	...	7	7	...	...	...
10	5	2	1	...	8	9	...	1	...
11	8	1	...	...	9	9	...	...	...
12	1	1	1	...	10	5	...	...	1
13	5	1	1	...	11	10	1	...	...
14	5	1	...	...	12	5	2	...	...
15	4	...	1	2	13	4	2	...	...
16	2	1	...	...	14	8	2	...	...
17	2	1	1	...	15	12	...	1	1
18	1	...	...	...	16	11	1	...	...
19	1	...	...	...	17	11	2	1	2
20	6	2	...	...	18	13	1	1	...
21	3	...	...	...	19	4	...	...	1
22	3	1	...	1	20	5	1	1	1
23	1	1	2	...	21	5	...	...	...
24	5	2	...	1	22	7	...	...	...
25	2	...	1	1	23	6	...	1	1
26	2	...	...	...	24	5	1	...	...
27	3	1	1	2	25	4	...	...	...
28	5	...	2	...	26	2	1	...	...
29	5	...	1	...	27	5	...	...	...
30	2	...	...	1	28	6	...	...	...
					29	10	1	...	...
					30	6	...	...	...
					31	4	...	1	...
Total	90	23	13	9	Total	191	16	9	8

Daily Mortality by Cholera, etc., in St. Louis, 1854.

	Cholera.	Diarrhœa.	Dysentery.	Cholera infantum.	Sunstroke.		Cholera.	Diarrhœa.	Dysentery.	Cholera infantum.	Sunstroke.
June 1	8	...	...	1	...	July 1	28	2	1	5	2
2	9	...	...	...	...	2	25	4	...	8	10
3	8	...	2	...	...	3	41	1	4	7	10
4	9	...	...	...	...	4	35	3	3	2	5
5	9	...	1	1	...	5	28	1	2	3	4
6	10	...	1	2	...	6	28	1	...	7	1
7	9	...	1	...	...	7	35	6	2	2	...
8	17	2	1	...	...	8	21	2	...	6	1
9	17	...	3	...	...	9	23	1	3	2	1
10	10	...	2	1	...	10	30	1	...	3	...
11	16	...	...	1	...	11	15	1	1	4	1
12	10	...	1	1	...	12	12	1	...	3	...
13	7	...	...	2	...	13	21	4	1	4	...
14	8	1	1	...	...	14	20	...	2	5	...
15	17	1	...	...	...	15	12	2	1	8	...
16	6	1	1	1	...	16	22	1	3	7	...
17	13	4	...	3	...	17	18	3	8	4	3
18	16	...	2	2	...	18	12	1	1	5	...
19	18	1	...	3	...	19	15	1	1	5	5
20	20	1	...	3	...	20	10	2	2	5	...
21	20	1	2	1	...	21	18	1	3	3	3
22	15	...	...	1	1	22	11	4	3	1	...
23	15	2	3	...	...	23	7	1	2	2	...
24	22	...	...	1	...	24	10	3	5	5	1
25	21	1	3	3	...	25	9	...	2	4	...
26	27	3	2	5	...	26	3	2	4	1	...
27	32	1	2	5	4	27	7	1	4	...	...
28	31	2	...	4	9	28	7	1	3	3	1
29	28	2	2	6	1	29	6	1	5	7	1
30	36	1	1	5	8	30	2	2	1	6	...
						31	7	3	3	6	7
Total	479	24	31	52	23	Total	538	57	72	133	56

Daily Mortality by Cholera, etc., in St. Louis, 1854.

	Cholera.	Diarrhœa.	Dysentery.	Cholera infantum.	Sunstroke.		Cholera.	Diarrhœa.	Dysentery.	Cholera infantum.	Sunstroke.
Aug. 1	9	3	5	5	...	Sept. 1	5	2	1	...	5
2	8	1	3	5	...	2	4	2	2	8	2
3	6	4	2	4	...	3	6	1	1	1	...
4	6	1	1	2	...	4	5	...	5	2	2
5	4	3	...	3	...	5	1	...	4	1	...
6	3	1	2	3	...	6	3	...	3	1	1
7	4	...	2	2	...	7	1	3	4	...	...
8	5	1	5	2	...	8	1	5	3	2	1
9	4	2	4	5	...	9	1	1	...	2	...
10	1	...	...	...	...	10	2	1	1	2	...
11	6	...	2	2	...	11	3	1	2	...	...
12	3	...	1	7	...	12	1	1	1	6	...
13	2	2	2	1	...	13	...	2	...	2	...
14	1	...	3	1	...	14	1	1	1	2	...
15	3	3	2	4	...	15	1	...	...	2	...
16	2	1	2	4	...	16	2	...	1	3	...
17	...	2	2	2	...	17	1	1	3	...	...
18	2	2	4	3	...	18	4	1	1	2	...
19	6	...	1	2	...	19	3	1	1	...	...
20	3	3	...	2	...	20	1	1	3	1	...
21	2	...	...	1	...	21	...	...	1	1	...
22	5	1	1	3	...	22	...	...	1	1	...
23	2	2	2	6	...	23	1	5	1	2	1
24	12	3	4	2	...	24	3	3	1	1	...
25	4	...	3	4	...	25	1	...	3	1	...
26	9	2	1	1	1	26	1	1	3	...	...
27	3	1	2	2	2	27	1	2	2	2	...
28	3	2	2	2	...	28	...	...	1	2	...
29	4	4	1	...	3	29	1	2	2	1	...
30	6	8	2	5	3	30	1	4	1	...	...
31	8	3	2	3	3	Oct. 1	1	1	1	...	...
Total	136	55	63	88	12	Total	56	42	54	48	12

Table of the Weekly Mortality of Subjects 5 years of age and under, in St. Louis, in the Spring and Summer of 1854, *showing the chief Causes of Infant Mortality during the prevalence of Epidemic Cholera.*

Week ending Sunday.	Weekly aggregate of deaths, 5 years and under.	Cholera.	Cholera infantum.	Diarrhœa.	Dysentery.	Marasmus.	Teething.	Convulsions.	Meningitis.	Eruptive fevers.	Pertussis.	Acute diseases of air-tubes.	Consumption.	Still-born.
April 9	34	2	1	3	...	1	...	6	3	2	...	2	1	6
" 16	36	4	2	...	1	2	2	2	4	1	...	1	3	1
" 23	38	...	1	2	2	1	2	7	...	3	1	4	...	4
" 30	32	...	5	2	2	2	...	9	2	3	...	...	1	5
May 7	38	7	1	1	1	2	...	3	4	2	1	3	1	3
" 14	42	11	1	3	...	3	2	3	1	3	...	1	2	4
" 21	43	12	5	2	1	1	...	5	2	3	...	2	2	4
" 28	30	8	1	...	...	1	...	4	1	...	2	...	...	3
June 4	41	6	1	...	2	2	3	6	1	4	2	4	1	2
" 11	69	21	5	1	6	4	1	2	3	3	...	1	4	4
" 18	75	13	9	5	4	5	2	9	5	3	...	1	2	...
" 25	118	32	12	4	3	5	5	12	4	11	1	4	3	4
July 2	209	50	38	10	6	8	18	20	18	17	2	6	3	4
" 9	212	35	29	8	8	4	16	28	16	9	1	1	3	2
" 16	140	28	34	7	2	9	9	13	6	5	3	2	...	4
" 23	139	22	25	7	13	3	8	18	12	6	2	2	1	2
" 30	138	14	26	5	17	12	12	15	6	4	...	2	1	4
August 6	126	3	28	8	6	11	12	16	7	3	...	1	1	3
" 13	107	3	19	2	10	9	7	8	9	1	1	...	3	3
" 20	98	2	18	8	9	7	4	12	3	1	...	1	4	1
" 27	88	5	19	6	3	3	5	12	9	1	...	1	...	1
Sept. 3	90	3	19	6	4	5	4	9	7	1	1	3	3	5
" 10	91	...	10	4	15	8	4	13	7	...	2	...	4	5
" 17	67	...	15	2	6	6	3	9	3	...	...	3	1	2
" 24	59	1	8	4	1	7	3	7	2	...	1	1	3	1
October 1	58	...	6	4	4	7	2	6	5	1	...	...	1	1
	2,218	282	338	104	126	128	124	254	140	87	20	46	48	78

An analysis, showing pointedly the results in the above table, would be very interesting, but we have time only to notice one or two points. It will be observed that eight of the diseases named in the series, increase in each successive week, until they attain their greatest weekly mortality in the week ending July 2d, the maximum week of the cholera mortality subsequently, their weekly variations in fatality correspond very much with the variations of cholera. The entire mortality of subjects of five weeks and under, is, in each succeeding week from April 1st to July 2d, more and more absorbed in the 13 tabulated mortuary causes, so that in this final week the aggregate, 209, is made up of 200 subjects dying of these 13 causes, leaving, therefore, but 9 to be accounted for by the occasional or rarer causes of infant mortality. The augmentation of general mortality as a result of the pressure of the "cholera cause," is strikingly manifest in the instance of the eruptive fevers, which were not generally prevalent in the city, the usual sporadic cases only occurring, yet the mortality by these fevers was so much increased in the week ending July 2d, as to imply an epidemic prevalence of them.

Tabular Statement of the Monthly Mortality by Diarrhœa in St. Louis, in 1854.

Ages.	Jan.		Feb.		Mar.		Ap'l.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Total.		Aggregate both sexes.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 2 yrs.	1	1	2	..	2	1	1	2	3	1	5	6	16	12	6	12	3	5	4	5	1	3	1	1	45	49	94
2 to 5 "	1	1	..	..	1	..	3	1	1	..	2	1	2	5	5	7	3	1	3	1	2	2	1	..	24	19	43
5 " 10 "	..	..	..	.	2	..	..	4	2	1	2	..	5	..	1	..	1	..	2	1	1	1	..	..	16	7	23
10 " 15 "	..	..	1	..	1	..	1	..	..	..	1	..	..	1	..	2	..	1	1	1	..	..	1	..	6	5	11
15 " 20 "	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	2	..	..	..	4	1	5
20 " 30 "	5	1	1	..	5	2	2	..	..	..	..	2	2	1	2	2	9	..	11	..	9	1	9	1	55	10	65
30 " 40 "	2	..	3	1	5	1	2	..	4	..	1	..	..	1	5	2	8	1	10	4	10	..	14	..	64	10	74
40 " 50 "	1	..	..	..	..	1	2	2	..	1	..	1	3	1	3	3	3	3	4	2	7	1	6	1	29	16	45
50 " 60 "	1	..	..	..	..	1	1	1	..	1	1	..	3	1	2	1	3	..	5	..	3	..	4	..	23	5	28
60 and over	..	1	1	1	..	..	1	..	1	..	1	..	2	..	2	..	..	..	2	..	1	..	2	1	13	3	16
Unknown	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	1	..	..	..	..	..	..	1	2	3
Total	11	4	8	2	16	6	13	10	11	5	13	11	35	22	26	29	30	12	43	14	36	8	38	4	280	127	407

Note.—The excess of males in the above is remarkable, and results from the prevalence of chronic diarrhœa in the hospitals during the autumn and winter months. Chronic diarrhœa, not a result of acute disease, was prevalent in the hospitals during the last half of the year, and seemed to *infect* almost every patient brought in, no matter what his previous disease might be; even the syphilitic patients were attacked by it. Of the above mortality, 18 are reported as from bilious diarrhœa.

Tabular Statement of the Monthly Mortality by Dysentery in St. Louis, in 1854.

Ages.	Jan.		Feb.		Mar.		Ap'l.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.		Total.		Aggregate both sexes.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Under 2 yrs.	2	..	1	1	4	..	2	..	1	1	7	9	16	11	12	9	11	9	10	7	6	5	3	1	75	53	128
2 to 5 "	..	..	..	..	..	..	2	..	..	..	5	1	5	4	4	3	7	2	2	8	4	2	2	2	31	22	53
5 " 10 "	2	..	..	..	..	..	..	..	..	..	5	..	2	..	..	2	..	..	..	3	1	2	1	1	11	8	19
10 " 15 "	..	..	1	..	..	..	..	..	..	..	..	..	..	2	..	1	1	..	3	1	2	..	..	..	7	4	11
15 " 20 "	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	1	..	..	1	1	..	1	..	6	3	9
20 " 30 "	..	..	..	..	..	..	3	1	1	1	2	1	7	5	6	5	4	4	7	3	3	3	2	5	35	28	63
30 " 40 "	1	..	..	..	..	..	..	..	..	..	1	..	..	4	2	2	4	1	..	6	2	2	2	1	12	16	28
40 " 50 "	..	..	1	..	..	1	..	..	1	..	2	1	3	4	1	3	2	1	5	1	..	1	2	..	17	12	29
50 " 60 "	..	..	..	..	..	..	1	1	..	..	..	1	2	3	..	1	3	2	2	1	..	1	4	..	12	10	22
60 and over	..	..	1	..	..	..	1	..	1	1	..	1	..	3	1	2	..	1	6	2	1	1	1	..	12	11	23
Unknown	..	..	..	..	..	..	2	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	4	1	5
Total	5	..	4	1	4	1	11	2	6	3	22	14	35	37	29	30	33	20	35	33	20	17	18	10	222	168	390

Daily Meteorological Table for April, 1854, *from observations*

	Barometer.	Open air thermometer. Fahrenheit.					Difference of dry and wet bulbs. Fahrenheit.					Relative humidity.				
	Daily mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.
April 3	29.719	38.5	47.0	65.0	54.5	51.2	5.0	8.0	14.5	9.0	9.1	54	42	29	42	42
" 4	29.668	51.0	55.5	52.5	53.0	53.0	6.0	6.5	1.0	1.0	3.6	58	59	93	93	76
" 5	29.552	52.0	59.5	62.5	51.5	56.4	1.0	4.0	5.0	1.5	2.9	93	76	72	90	83
" 6	29.427	49.0	63.0	80.0	66.0	64.5	0.5	7.0	18.0	8.0	8.4	96	62	27	59	61
" 7	29.417	54.0	65.0	81.0	67.0	66.7	2.5	7.0	17.5	8.5	8.9	83	63	33	57	59
" 8	29.353	60.0	74.0	81.0	66.5	70.4	3.0	11.0	16.0	9.0	9.7	82	51	38	54	56
" 9	29.099	64.0	71.0	58.0	48.0	60.2	5.5	10.5	11.0	4.5	7.9	70	53	37	66	56
Mean of week	29.462	52.6	62.1	68.6	58.1	60.3	3.2	7.7	10.4	5.9	7.2	77	58	47	66	
April 10	29.398	42.0	42.0	49.0	44.0	44.2	3.0	2.5	7.0	4.0	4.1	74	78	51	68	68
" 11	29.513	39.5	51.5	57.5	47.0	48.9	2.5	7.0	9.0	3.0	5.4	77	53	47	77	63
" 12	29.474	42.0	56.0	66.5	55.5	55.0	1.0	6.5	12.5	6.5	6.6	91	60	39	59	62
" 13	29.446	52.0	58.5	59.0	56.0	56.4	5.0	6.0	2.5	1.0	3.6	65	64	84	93	76
" 14	29.191	53.0	53.0	53.0	43.5	50.6	2.0	1.0	2.0	2.0	1.7	86	93	86	83	87
" 15	29.314	36.0	36.5	36.5	35.0	36.0	1.0	1.5	2.0	1.0	1.4	90	86	79	89	86
" 16	29.377	34.0	40.5	48.5	40.0	40.7	2.5	5.5	9.5	5.5	5.7	74	54	34	53	54
Mean of week	29.388	42.6	48.3	52.9	45.9	47.4	2.4	4.1	6.4	3.3		82.4	67	60	76	
April 17	29.518	31.5	42.0	52.0	42.0	41.9	1.5	6.5	11.5	4.0	5.9	84	46	27	66	56
" 18	29.543	37.5	50.0	63.5	51.5	50.6	2.5	7.0	13.5	7.5	7.6	76	51	31	50	52
" 19	29.375	46.0	62.0	79.5	64.5	63.0	3.0	10.5	16.0	8.0	9.4	76	44	27	58	54
" 20	29.347	58.0	72.0	83.5	69.0	70.6	4.0	12.0	18.4	8.5	10.7	76	45	32	58	53
" 21	29.245	64.0	65.0	84.0	69.0	70.5	5.5	4.0	15.5	6.5	7.9	70	78	42	68	64
" 22	29.268	65.5	70.0	83.0	72.5	72.7	3.0	5.0	13.5	6.0	6.9	84	75	49	71	70
" 23	29.294	66.0	79.0	84.0	70.5	74.9	1.0	9.5	12.0	5.0	6.9	94	60	54	75	71
Mean of week	29.370	52.6	62.9	75.6	62.7	63.5	2.9	7.8	14.4	6.5		80	57	39	64	
April 24	29.321	64.0	76.5	88.5	75.0	76.0	4.0	8.5	21.5	11.0	11.2	78	62	27	52	55
" 25	29.156	70.5	68.0	79.5	93.0	70.2	8.5	4.0	12.5	2.5	6.9	60	80	48	86	68
" 26	28.991	60.0	70.0	71.0	59.0	65.0	2.0	5.0	2.0	0.5	2.4	88	75	90	97	87
" 27	29.296	57.0	58.0	46.0	40.5	49.1	1.0	1.0	3.5	4.0	2.4	93	93	72	66	81
" 28	29.846	34.0	42.0	52.5	43.0	42.9	1.5	5.0	9.5	5.5	5.4	85	58	39	56	59
" 29	29.774	38.0	51.5	59.0	47.0	48.9	4.0	9.0	13.5	5.0	7.9	63	41	25	62	48
" 30	29.587	41.5	58.0	69.5	54.0	55.7	2.5	11.0	15.5	7.0	9.0	78	36	29	55	49
Mean of week	29.428	52.1	59.9	66.6	54.5	58.3	3.4	6.2	11.1	5.1		78	64	47	68	
Mean of April	29.536	48.5	56.5	64.2	53.8		2.9	6.3	10.7	5.1		78	61	44	67	

made in St. Louis. By GEORGE ENGELMAN, M. D.

CLEARNESS OF SKY.					NO. OF DAYS			RAIN.			THUNDER-STORMS.	WINDS.
Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Fair.	Variable.	Overclouded.	Days.	Hours.	Quantity.		
5	...	9	...	3	...	1	...	...	...	...	...	S.E, S.S.E. 3 2, S. 2.
...	...	...	...	...	...	...	1	1	11	0.45	...	S.S.E. 2.
...	9	1	10	5	...	1	...	...	...	...	...	S.E., S.W., W. 3, S.
9	8	10	10	9	1	...	...	...	...	...	...	S.S.W., W.S.W.
9	10	10	10	10	1	...	...	...	...	...	...	N.N.W., E., S.E.
8	8	6	9	8	...	1	...	...	...	...	...	S.E., S.
...	6	3	...	2	...	1	...	...	...	...	...	S. 2, S.W. 4, W.S.W. 5 3.
4.4	5.9	5.6	5.6	9	2	4	1	1	11	0.45	...	
...	...	2	10	3	...	1	...	...	...	...	...	W. 3, W.N.W. 3.
10	6	2	10	7	...	1	...	...	...	...	...	N., E., E.S.E.
5	9	9	9	8	1	...	...	...	...	...	...	E.S.E.
...	...	...	...	...	...	...	1	1	7	0.55	...	E.
...	...	...	...	...	...	...	1	1	20	1.07	1	E., N., N.W.
...	...	...	...	...	...	...	1	1	20	0.23	...	N.W. 3, N.N.W. 2 3.
3	6	3	10	5	...	1	...	...	...	...	...	N.N.W. 3 3 2.
2.6	3	2.3	5.6	6	1	3	3	3	47	1.85	1	
9	10	10	10	10	1	...	...	...	...	...	...	N.N.W., N., N.N.E.
10	9	10	10	10	1	...	...	...	...	...	...	S.E., S.S.E., S.
10	10	10	10	10	1	...	...	...	...	...	...	S.
10	10	9	9	9	1	...	...	...	...	...	...	S., S.S.E.
3	...	2	9	3	...	1	...	...	...	...	...	S.S.W., S.E., S.S.W.
...	5	5	...	3	...	1	...	...	...	...	...	S.S.W., S.W., S.
3	5	...	8	4	...	1	...	1	1	0.10	1	W., E.S.E., E.
6.4	7.0	6.6	8.0	7	4	3	...	1	1	0.10	1	
9	9	9	6	8	1	...	...	...	...	...	...	E.S.E., S.S.E. 3 2.
2	...	7	...	2	...	1	...	1	3½	0.74	2	S.S.W., S.E., W. 3, S.S.E.
9	5	...	...	3	...	1	...	1	3½	2.89	1	S.E., S., E., W. 4, S.E.
...	...	...	10	2	...	1	...	1	4¼	1.57	...	W. 2, W.N.W. 4, N.N.W. 4 3.
10	10	10	10	10	1	...	...	...	...	...	...	N. 2 3 4 3 2.
10	10	10	9	10	1	...	...	...	...	...	...	N.N.E., N.
8	10	10	10	9	1	...	...	...	...	...	...	N.N.W., W.
6.9	6.3	6.6	6.4	7	4	3	...	3	11¼	5.20	3	
5.4	5.8	5.4	6.6		12	14	4	8	70¼	7.60	5	S.E., then S. & N.W.

Daily Meteorological Table for May, 1854, *from observation*

	Barometer.	Open air thermometer. Fahrenheit.					Difference of dry and wet bulbs. Fahrenheit.					Relative humidity.				
	Daily mean.	Sunrise	9 A. M.	3 P. M.	10 P. M.	Mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.
May 1	29.499	48.0	63.0	74.0	61.5	61.1	3.0	10.5	18.5	8.0	10.0	71	44	24	55	48.[illegible]
" 2	29.522	45.0	48.0	64.0	54.0	52.5	5.5	8.0	14.0	7.0	8.6	57	43	29	56	46.[illegible]
" 3	29.528	46.0	62.5	72.0	59.0	59.9	2.5	10.5	17.5	5.0	8.9	80.5	44	24	70	54.[illegible]
" 4	29.464	54.0	66.0	76.5	60.0	64.1	3.0	8.0	16.5	8.0	8.8	80	59	32	55	56.[illegible]
" 5	29.441	55.0	66.5	76.0	63.0	65.1	2.5	9.5	17.0	10.5	9.9	83	52	31	45	52.7
" 6	29.376	56.0	68.0	81.0	66.0	67.1	7.5	12.0	18.0	8.0	11.4	54	42	30	59	46.[illegible]
" 7	29.248	58.0	72.0	85.0	68.0	70.7	6.5	13.0	19.5	9.0	12.0	61	42	30	55	47.[illegible]
Mean of week	29.488	51.7	63.7	75.5	61.6	62.9	4.4	10 2	17.3	7.9	9.9	70	47	29	56	
May 8	29.203	62.0	75.0	79.0	74.0	72.5	8.0	9.5	9.5	6.0	8.2	56	57	60	72	61.[illegible]
" 9	29.163	63.0	78.0	85.0	66.0	73.0	2.0	11.0	16.5	5.0	8.6	89	54	39	73	64.0
" 10	29.331	52.5	59.0	68.5	57.0	59.2	8.5	10.0	17.0	6.5	10.5	45	43	23	60	43.0
" 11	29.401	51.0	67.0	78.0	62.5	64.6	3.5	11.0	18.0	7.5	10.0	74	45	29	59	52.0
" 12	29.200	56.5	72.0	81.0	75.5	71.2	5.5	13.0	11.5	8.5	9.6	71	42	54	61	57.0
" 13	29.055	62.5	61.5	67.5	63.0	63.6	1.5	0.5	2.5	2.5	1.7	92	97	87	86	90.5
" 14	29.398	52.0	63.5	74.0	62.0	62.9	3.0	7.5	15.0	2.0	6.9	79	59	35	88	65.2
Mean of week	29.250	57.1	68.0	76.1	65.7		5.4	8.9	12.9	5.4	7.9	72	57	47	71	
May 15	29.407	58.0	72.0	81.0	69.5	70.1	2.0	8.0	14.5	5.5	7.5	87	63	43	73	66.5
" 16	28.941	66.5	64.0	72.0	65.5	67.0	3.5	3.0	3.0	3.0	3.1	82	83	85	84	86.0
" 17	28.941	55.0	52.0	58.0	55.0	55.0	3.5	4.0	8.0	5.0	5.0	78	73	53	68	68.0
" 18	29.300	52.0	62.0	75.0	63.0	63.0	4.5	8.0	17.0	6.5	9.0	69	56	30	64	55.0
" 19	29.481	56.0	66.0	72.0	56.0	62.5	1.0	11.0	17.0	7.0	9.0	93	45	27	57	55.5
" 20	29.529	52.0	68.0	68.5	60.0	62.0	3.0	9.0	11.5	3.5	6.7	79	55	45	79	64.5
" 21	29.555	54.0	65.5	75.5	62.0	64.2	2.0	7.0	14.5	7.0	7.6	87	64	39	62	63.0
Mean of week	29.301	56.2	64.2	71.7	61.6		2.8	7.1	12.2	5.4	6.8	82	63	46	70	
May 22	29.609	57.0	70.0	77.0	62.0	66.5	4.5	12.0	14.5	5.5	9.1	72	44	40	69	56.2
" 23	29.527	56.5	65.0	70.0	63.0	63.6	5.0	8.0	7.0	0.5	5.1	69	59	66	97	73.0
" 24	29.355	62.0	65.0	77.0	68.0	68.0	0.5	0.0	6.5	1.5	2.1	97	100	71	92	90.0
" 25	29.324	64.0	73.0	83.0	72.0	73.0	0.0	4.0	10.5	3.0	4.4	100	81	58	85	81.0
" 26	29.303	68.0	75.0	83.0	68.5	73.6	1.0	6.0	10.5	1.5	4.8	94	72	58	92	79.0
" 27	29.291	68.0	77.0	81.0	72.0	74.5	1.0	7.0	9.0	2.0	4.7	94	69	63	90	79.0
" 28	29.164	68.0	75.0	83.5	73.0	74.9	1.0	4.0	10.5	3.0	4.6	94	81	56	85	79.0
Mean of week	29.368	63.4	71.4	79.2	68.4		1.9	5.9	9.8	2.4	5.0	89	72	59	88	
May 29	29.164	69.0	68.0	83.0	73.0	73.2	1.0	2.5	10.0	3.	4.1	95	87	60	85	82.0
" 30	29.207	68.0	83.0	78.0	67.0	74.0	1.0	8.0	8.5	2.	4.9	95	68	63	90	79.0
" 31	29.361	65.0	76.0	80.0	67.0	72.0	1.0	6.0	9.0	3.	4.7	95	73	62	84	78.5
Mean of May	29.332	58.1	67.7	76.1	68.8		3.2	7.8	12.6	5.0		80	61	46	72	

made in St. Louis. By GEORGE ENGELMAN, M. D.

CLEARNESS OF SKY.					NO. OF DAYS			RAIN.			THUNDER-STORMS.	WINDS.
Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Fair.	Variable.	Overclouded.	Days.	Hours.	Quantity.		
9	3	9	...	5	...	1	...	...	...	...	...	S.W., S.S.W., S.W.
...	1	10	9	5	...	1	...	1	1	0.05	...	N.N.W. 3 3, W. 3 2.
9	9	10	7	9	1	...	...	...	...	...	...	W.
5	...	6	8	5	...	1	...	...	...	...	...	S.S.W.
8	10	10	8	9	1	...	...	...	...	...	...	W., N., E.N.E.
9	9	9	10	9	1	...	...	...	...	...	...	E.N.E.
10	10	9	10	10	1	...	...	...	...	...	...	N.E., E.
7.1	6	9	7.4	7	4	3	...	1	1	0.05	...	
8	8	3	2	5	...	1	...	1	½	0.03	1	E.S.E, S.E.
4	9	4	5	5	...	1	...	1	½	0.07	1	S.S.E.
5	10	10	10	9	1	...	...	...	...	...	...	W.N.W. 3, W. 3, S. 2.
10	10	10	9	10	1	...	...	...	...	...	...	S., S.E.
9	7	3	...	5	...	1	...	...	...	...	...	E. 2 3, E.S.E. 4.
...	...	3	10	3	...	1	...	1	12	3.23	2	E.S.E., W., S., S.E.
10	10	10	10	10	1	...	...	...	...	...	...	W.
6.6	7.7	6.1	6.6	7	3	4	...	3	12¾	3.33	4	
9	9	10	10	9	1	...	...	...	...	...	...	S.S.E. 2 3.
...	...	...	8	2	...	1	...	1	4	1.08	2	E.S.E. 2 4 3, E., S.E. 3.
...	...	...	...	...	...	...	1	...	...	...	...	W.S.W. 3 4 5 4.
8	10	10	...	7	1	...	...	...	...	...	...	W. 3, S.W., S.
6	9	9	10	8	1	...	...	1	½	0.05	...	W. 2 3.
8	8	...	2	4	...	1	...	...	...	...	...	S.S.W., W.
4	9	8	10	8	1	...	...	...	...	...	...	W.S.W., N.N.W.
5	6.4	5.3	5.7	9	4	2	1	2	4½	1.08	2	
6	8	4	10	7	...	1	...	...	...	...	...	N.N.E., E. 2 2.
8	...	...	...	2	...	1	...	1	8½	0.17	...	E.
...	...	3	8	3	...	1	...	1	4	0.03	...	E., S.E., S.
...	5	5	9	5	...	1	...	...	...	...	...	S., S.E.
...	2	2	...	1	...	1	...	1	½	0.05	...	E.S.E.
5	2	4	2	3	...	1	...	1	¼	0.06	...	E.S.E.
...	2	4	10	4	...	1	...	1	¼	0.03	...	S.E., E.S.E.
2.7	2.7	3.1	5.6	6	...	7	...	5	13¼	0.34	...	
...	...	8	8	4	...	1	...	1	1½	0.10	1	S.E.
9	9	...	...	4	...	1	...	1	1½	1.40	1	S., S.E., W. 3 6, E.S.E.
8	6	2	...	4	...	1	...	...	...	...	...	S.E., E., N.E.
5.4	5.6	5.6	6		11	19	1	13	84½	6.30	8	S.E., then W.

Daily Meteorological Table for July, 1854, *from observations*

	Barometer.	Open air thermometer. Fahrenheit.					Difference of dry and wet bulbs. Fahrenheit.					Relative humidity.				
	Daily mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.
July 1	29.465	78.0	90.0	98.0	86.5	88.1	2.5	10.5	16.5	5.5	8.7	88	61	47	78	68
" 2	29.515	80.0	90.0	92.0	83.0	86.2	2.5	11.5	11.0	5.0	7.5	89	58	61	79	72
Mean of week	29.447	78.0	88.6	95.6	84.2		3.2	10.0	15.1	6.1		85	65	50	75	
July 3	29.430	78.0	90.0	98.5	84.0	87.6	2.5	11.0	17.0	4.5	8.7	88	60	46	81	69
" 4	29.399	80.0	90.0	96.5	81.5	87.0	5.0	10.0	14.5	4.5	8.5	78	63	52	81	68
" 5	29.397	77.0	86.0	78.0	75.0	79.0	4.5	7.0	4.5	2.0	4.5	80	72	80	90	80
" 6	29.424	73.0	85.0	93.0	77.0	82.0	1.0	7.0	11.5	3.5	5.7	95	72	59	84	77
" 7	29.459	74.0	86.0	96.0	84.5	85.1	2.0	8.0	14.5	6.0	7.6	90	68	51	75	71
" 8	29.514	78.0	89.0	97.0	84.0	87.1	3.5	11.0	17.0	6.5	9.5	83	59	46	73	65
" 9	29.611	70.0	72.0	76.5	68.5	71.7	3.0	6.0	5.5	3.5	4.5	84	71	76	81	78
Mean of week	29.462	76.6	85.4	90.8	79.2		3.1	8.6	10.6	4.4		85	66	59	81	
July 10	29.635	62.0	74.0	80.5	68.0	71.1	4.5	8.0	15.5	5.0	8.2	74	64	39	74	63
" 11	29.576	58.0	76.5	86.0	76.0	74.1	2.5	10.5	16.0	9.0	9.5	84	55	42	60	60
" 12	29.567	68.0	78.5	86.5	73.0	76.5	3.0	11.5	15.5	7.5	9.4	84	52	44	64	61
" 13	29.516	66.0	81.0	90.5	77.5	78.7	3.0	9.0	17.5	7.0	7.9	84	63	40	69	64
" 14	29.503	71.0	83.0	92.0	78.0	81.0	3.0	10.0	17.0	6.5	9.1	85	60	43	71	65
" 15	29.455	72.0	86.0	94.0	81.0	83.2	4.0	11.0	19.0	7.0	10.2	81	58	38	70	62
" 16	29.491	76.0	89.0	96.0	83.5	86.1	3.0	11.0	18.0	7.0	9.7	86	59	42	72	65
Mean of week	29.535	68.0	81.1	89.4	76.7		3.3	10.1	17.0	7.0		83	59	41	69	
July 17	29.588	78.0	90.0	98.5	84.5	87.7	4.0	10.0	19.5	6.5	10.0	82	63	39	74	64
" 18	29.530	78.0	90.0	99.0	85.0	88.0	2.0	10.0	20.0	7.0	9.7	91	63	38	72	66
" 19	29.420	77.5	90.0	99.8	84.5	87.9	3.0	11.0	21.8	8.5	11.1	86	59	35	65	61
" 20	29.356	79.0	90.5	100.5	82.5	88.1	5.5	12.0	24.0	7.0	12.1	76	57	30	71	58
" 21	29.424	76.0	86.0	91.0	76.0	82.2	3.5	11.0	14.0	6.0	8.6	83	58	51	72	66
" 22	29.488	70.5	77.5	90.0	78.5	79.1	3.0	8.0	16.0	6.0	8.2	85	65	44	73	67
" 23	29.471	74.0	84.0	92.0	80.5	82.6	3.0	8.0	17.0	8.5	9.1	86	68	43	64	65
Mean of week	29.468	76.1	89.6	95.8	81.6		3.4	10.0	18.9	7.1		84	62	40	70	
July 24	29.362	76.0	84.0	97.0	80.0	82.2	6.0	10.0	16.5	7.0	9.9	72	60	47	70	62
" 25	29.326	80.0	90.0	93.0	78.0	85.2	6.5	10.0	22.5	9.5	12.1	72	63	28	59	55
" 26	29.602	69.0	76.0	85.0	73.5	75.9	8.5	12.0	20.0	11.5	12.5	58	49	28	49	46
" 27	29.603	66.0	78.0	90.0	77.0	75.2	7.0	11.0	18.5	9.0	11.4	64	54	37	61	54
" 28	29.507	71.5	83.5	98.0	82.5	83.9	5.0	9.5	24.0	11.0	12.4	75	62	28	56	55
" 29	29.445	75.0	90.0	101.0	87.0	88.2	3.5	13.0	21.0	10.0	11.9	83	53	38	62	59
" 30	29.506	80.5	90.5	100.5	85.5	89.2	6.0	13.5	24.5	9.0	13.2	73	52	30	65	55
Mean of week	29.479	74.0	84.6	94.9	80.5		6.1	11.3	21.0	9.6		71	56	34	60	
July 31	29.547	80.0	91.5	100.0	86.5	89.5	4.0	14.0	22.0	9.5	12.4	78	45	38	58	55
Mean of July	29.489	73.9	85.1	93.1	80.1		3.9	10.2	17.1	7.0		82	51	35	64	

made in St. Louis. By GEORGE ENGELMAN, M. D.

CLEARNESS OF SKY.					NO. OF DAYS			RAIN.			THUNDER-STORMS.	WINDS.
Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Fair.	Variable.	Over-clouded.	Days.	Hours.	Quantity.		
10	10	8	7	...	1	...	...	...	...	...	...	E., S.S.E., S.S.W.
10	10	3	9	...	1	...	...	...	...	...	...	S.W., N.W.E.
8.3	9.0	7.0	9.0	...	6	1	...	...	...	...	...	
10	10	8	10	...	1	...	...	...	...	...	...	S.E., S.
10	8	4	9	...	1	...	...	...	...	...	...	S., W., S.
3	7	...	4	...	...	1	...	1	2	0.23	1	S.W., S.E.
8	10	8	9	...	1	...	...	1	½	0.36	1	E.S.E., S.S.E.
10	10	8	10	...	1	...	...	...	...	...	...	S.
10	10	8	5	...	1	...	...	...	...	...	...	S.W., W. 3, W.S.W., N.N.W. 3.
...	...	...	9	...	...	1	...	1	½	0.03	...	N.W. 3, N.N.W. 3.
7.3	7.9	5.1	8	...	5	2	...	...	...	...	...	
10	10	10	10	...	1	...	...	...	...	...	...	N.N.W. 3.
9	10	10	9	...	1	...	...	...	...	...	...	N.N.W., N.
10	10	8	10	...	1	...	...	...	...	...	...	N., N.E.
10	10	9	10	...	1	...	...	...	...	...	...	N.E., E.S.E. 2 2.
1	7	9	10	...	1	...	...	...	...	...	...	E.S.E., S.E.
10	10	9	10	...	1	...	...	...	...	...	...	S.E., E.S.E.
9	7	9	10	...	1	...	...	...	...	...	...	S.S.E., S.E.S.
8.4	9.1	9.1	9.9	...	7	...	...	...	...	...	...	
10	9	6	9	...	...	1	...	...	...	...	...	S.S.E., E.S.E.
10	9	9	9	...	1	...	...	...	...	...	...	S., S.S.E., S.E.
9	9	9	10	...	1	...	...	...	...	...	...	S.S.W., S.E.
10	9	8	7	...	1	...	...	...	...	...	...	S., S.E. 3, W. 3.
9	9	6	10	...	1	...	...	...	...	...	...	W. 2 3 2.
10	9	10	10	...	1	...	...	...	...	...	...	N., N.W. 3.
5	1	6	9	...	...	1	...	...	...	...	...	N.N.W., N., N.E.
9	8	7.7	6.8	...	5	2	...	...	...	...	...	
9	8	6	9	...	...	1	...	1	¾	0.30	1	E.N.E., S.E. 4, S.
9	9	5	10	...	1	...	...	...	...	...	...	S.W., W. 3., N.W. 4 3.
2	9	10	10	...	1	...	...	...	...	...	...	N.N.W.
10	10	9	10	...	1	...	...	...	...	...	...	E.N.E., S., N.E.
10	9	9	10	...	1	...	...	...	...	...	...	S.S.E.
10	10	9	9	...	1	...	...	...	...	...	...	S., W. 3, S.S.E.
4	10	10	10	...	1	...	...	...	...	...	...	S.S.W., S.S.E. 3, S.E. 3.
7.7	9.3	8.3	9.7	...	6	1	...	4	3¾	0.92	3	S., S.W. 3, S.S.W. 3.
...	...	...	...	...	1	...	...	...	...	...	...	
8.3	8.7	7.5	9.1	...	26	5	...	4	3¾	0.92	3	S., S.W. 3, S.S.W. 3.

Daily Meteorological Table for August, 1854, *from observations*

	BAROMETER.	OPEN AIR THERMOMETER. FAHRENHEIT.					DIFFERENCE OF DRY AND WET BULBS. FAHRENHEIT.					RELATIVE HUMIDITY.				
	Daily mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.
Aug. 1	29.504	80.5	93.0	101.0	86.0	90.0	5.0	16.0	20.5	11.0	13.1	78	46	38	58	55
" 2	29.482	80.5	90.0	98.0	86.0	88.6	9.5	14 0	20.0	6.0	12.4	61	50	38	76	56
" 3	29.420	79.0	92.0	99.0	75.0	86.2	9.0	18.5	26.0	3.5	14.2	62	39	25	83	52
" 4	29.482	72.0	78.0	86.0	75.0	77.7	2.5	8.0	21.5	9.5	10.4	88	65	25	58	59
" 5	29.535	63.5	80.5	90.0	76.0	77.5	3.5	11.0	20.0	8.0	10.6	80	55	32	65	58
" 6	29.480	70.5	84.5	96.5	80.0	82.8	5.0	12 0	27.5	10.5	14.0	75	54	19	57	51
Mean of week	29.493	75.1	87.1	95.9	80.6		5.5	13.4	22.5	8.3		74	51	31	65	
Aug. 7	29.524	69.5	73.0	84.0	69.0	73.9	4.0	9.0	15.5	9.5	9.5	82	59	42	54	59
" 8	29.550	58.0	72.0	83.0	70.5	70.8	3.0	9.0	18.5	9.0	9.9	81	58	32	58	57
" 9	29.413	64.0	68.0	74.0	71.5	69.4	5.0	7.0	6.5	4.0	5.6	72	66	70	81	72
" 10	29.355	67.0	81.0	90.5	79.0	79.4	3.0	8.0	14 5	7.5	8.2	84	67	49	67	67
" 11	29.352	72.0	84.0	98.5	84.5	84.7	3.0	9.0	18.0	6.0	9.0	85	64	43	76	67
" 12	29.386	81.0	80.0	84.0	78.0	80.7	7.0	8.0	7.5	4.5	6.7	70	66	70	79	71
" 13	29.457	73.5	85.0	96.5	83.0	84.5	3.0	8.0	19.5	9.5	10.0	85	68	39	62	63
Mean of week	29.434	69.4	77.6	87.2	75.1		3.9	8.3	14.3	7.1	8.4	80	64	49	68	
Aug. 14	29.441	72.0	82.0	98.0	82.5	83.6	6.5	11.0	17.0	7.5	10.5	69	56	46	69	60
" 15	29.543	71.5	75.0	80.5	73.5	75.1	1.0	4.0	8.0	3.0	4.0	95	82	66	85	82
" 16	29.529	67.0	74.0	83.0	71.0	73.7	4.0	7.0	13.0	8.0	8.0	79	60	50	62	63
" 17	29.547	66.5	73.0	81.0	69.5	72.5	5.5	12.0	15.5	9.5	10.6	72	46	39	54	53
" 18	29.497	65.0	74.0	85.0	70.0	73.5	5.0	11.0	19.0	7.0	10.5	73	51	32	66	55
" 19	29.482	61.0	76.0	89.0	74.5	75.1	3.0	8.0	19.0	7.0	9.2	82	65	35	68	62
" 20	29.539	69.0	81.0	93.0	78.0	80.2	3.5	9.0	21.5	8.0	10.5	81	63	31	65	60
Mean of week	29.511	67.4	76.4	87.1	74.1		4.1	8.9	16.1	7.1	9.0	79	60	43	67	
Aug. 21	29.561	69.5	82.5	93.0	78.0	80.7	3.5	10.0	20.5	6.0	10.0	82	59	33	73	62
" 22	29.546	70.5	84.5	95.5	80.0	82.6	3.0	12.0	21.5	6.5	10.7	85	54	32	72	61
" 23	29.505	72.0	85.0	96.5	80.5	83.5	3.0	11.0	20.5	11.0	11.9	86	57	35	55	58
" 24	29.536	75.0	85.0	92.5	82.0	83.6	5.0	12.0	16.5	7.0	10.1	77	55	44	71	62
" 25	29.508	76.0	86.0	89.0	79.5	82.6	4.0	12.0	12.5	7.0	8.9	82	55	54	70	65
" 26	29.502	75.0	86.0	90.0	79.0	82.5	3.0	11.0	15.0	6.0	8.7	86	58	47	73	66
" 27	29.508	76.0	87.0	78.0	78.5	79.9	3.0	12.0	4.0	2.0	5.2	87	55	82	91	79
Mean of week	29.524	73.4	85.1	90.6	79.6		3.5	11.4	15.8	7.9	9.4	84	56	47	72	
Aug. 28	29.502	75.0	86.0	96.0	81.5	84.6	2.5	7.0	18.5	5.5	8.4	88	73	41	77	66
" 29	29.489	76.5	88.0	98.5	84.5	86.9	2.5	10.0	18.0	7.5	9.5	88	62	43	70	66
" 30	29.491	78.0	89.0	100.5	84.5	88.0	3.0	10.0	22.5	10.5	11.5	86	62	34	59	60
" 31	29.496	79.0	91.5	99.0	85.0	88.6	6.5	14.0	20.5	10.5	12.9	71	51	37	59	54
Mean of Aug.	29.489	71.8	82.1	91.0	78.2		4.2	10.3	17.4	7.3		79	58	40	68	

made in St. Louis. By GEORGE ENGELMAN, M. D.

CLEARNESS OF SKY.					NO. OF DAYS			RAIN.			THUNDER-STORMS.	WINDS.
Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Fair.	Variable.	Overclouded.	Days.	Hours.	Quantity.		
10	10	5	10	9	...	1	...	...	...	...	...	S.W., W. 3, S.E.
10	8	4	8	7	...	1	...	...	...	...	...	W., S.W., S.E.
8	9	5	9	7	...	1	...	...	...	...	1	W.S.W. 3, W. 4, W.N.W.
7	6	9	10	8	1	...	...	...	...	...	...	W., N.W. 3 2.
10	10	10	10	10	1	...	...	...	...	...	...	N.W., N.E., E.N.E.
10	10	7	7	8	1	...	...	...	...	...	...	S.E., N.E., N.N.E.
7.9	7.6	5.7	7.7		4	3	...	...	...	...	1	
4	4	5	7	5	...	1	...	...	...	...	...	N. 3, N.E. 3, N. 3 4.
10	10	6	4	7	...	1	...	...	...	...	...	N., E., E.N.E. 3 2.
...	...	...	5	1	...	1	...	1	3	0.07	...	E., N.E., E.
8	10	10	10	9	1	...	...	...	...	...	...	E.S.E., N.E., N.N.W.
8	5	8	6	7	...	1	...	...	...	...	...	N., E., S.E.
...	...	1	8	2	...	1	...	...	...	...	...	S., N., E., S.W.
6	9	9	10	8	1	...	...	...	...	...	...	W., N.N.W.
5.1	5.4	5.6	7.1	5.6	2	5	...	1	3	0.07	...	
8	9	9	7	8	1	...	...	...	...	...	...	E.N.E, N.E., E.
...	1	3	10	4	...	1	...	1	3½	1.18	1	S., N.W., N., W.
5	4	2	...	3	...	1	...	...	...	...	...	N., E., N.W. 3.
4	6	8	10	7	...	1	...	...	...	...	...	N.N.W. 2 3 2.
10	10	10	10	10	1	...	...	...	...	...	...	N.N.W., N.N.E.
10	9	10	10	10	1	...	...	...	...	...	...	N.E., E.
10	10	10	10	10	1	...	...	...	...	...	...	E., S.E.
6.7	7.0	7.4	8.1	7.6	4	3	...	1	3½	1.18	1	
10	10	10	9	10	1	...	...	...	...	...	...	S.S.E.
9	9	10	10	9	1	...	...	...	...	...	...	S., S.E.
9	9	8	10	9	1	...	...	...	...	...	...	E. 2 3, S.E.
2	8	1	7	4	...	1	...	...	...	...	...	S., E.S.E., S.S.E.
...	2	...	1	1	...	1	...	...	...	...	...	S.S.E., W.
3	7	2	8	5	...	1	...	...	...	...	...	E.S.E., S.W.
6	5	2	10	6	...	1	...	1	1	0.55	1	S.W., W., N.W., S.E.
5.6	7.1	4.7	7.9	6	3	4	...	1	1	0.55	1	
10	10	7	10	9	1	...	...	...	...	...	...	E. 2 3 2.
8	8	9	10	9	1	...	...	...	...	...	...	S.S.W.
10	9	8	10	9	1	...	...	...	...	...	...	S.S.W.
10	8	9	9	9	1	...	...	...	...	...	...	S.S.E., S.E.
7	7.5	6.2	8.2	...	16	15	...	3	7½	1.80	3	E. and S.E.

Daily Meteorological Table for September, 1854, from observations

	Barometer corrected.	Open air thermometer. Fahrenheit.					Difference of dry and wet bulbs. Fahrenheit.					Relative humidity.				
	Daily mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.
Sept. 1	29.494	78.0	90.0	98.5	83.5	85.0	6.0	15.0	26.5	12.5	15.0	73	47	22	52	48
" 2	29.504	76.0	87.0	96.0	82.0	85.2	6.5	14.0	22.5	10.5	13.4	71	49	30	58	52
" 3	29.492	76.0	88.0	98.5	83.0	88.9	4.0	13.0	22.5	9.5	12.2	82	52	31	62	57
Mean of week	29.495	79.6	88.5	98.1	83.4		4.4	11.9	21.6	9.5		80	57	34	62	
Sept. 4	29.434	77.0	87.0	97.5	81.0	85.6	5.5	12.0	19.5	7.0	11.0	76	55	39	71	60
" 5	29.425	75.5	85.5	89.0	80.0	82.5	4.5	9.5	14.0	9.0	9.2	79	60	50	68	63
" 6	29.477	75.0	82.0	83.5	76.0	79.1	5.0	10.0	10.5	4.0	7.4	77	59	59	82	69
" 7	29.498	75.0	81.0	89.5	79.5	81.2	4.0	8.0	15.0	7.5	8.6	82	67	46	67	65
" 8	29.271	73.0	86.0	99.5	83.0	85.4	3.0	11.0	24.5	8.5	11.7	85	58	29	65	59
" 9	29.227	77.5	83.0	77.5	70.0	77.0	7.0	8.0	5.5	3.0	5.9	69	68	76	85	74
" 10	29.369	68.5	72.5	84.0	73.0	74.5	5.0	8.5	15.5	7.5	9.1	74	60	42	65	60
Mean of week	29.386	74.5	82.4	88.6	77.5		4.9	9.6	14.9	6.6		77	61	49	71	64
Sept. 11	29.291	68.0	80.0	93.5	73.0	78.6	3.5	9.5	16.5	1.5	7.7	81	60	45	93	70
" 12	29.444	72.0	72.0	80.0	74.0	74.5	1.5	3.0	7.5	5.0	4.2	92	86	68	77	81
" 13	29.491	70.5	77.0	76.5	70.0	73.5	2.5	6.0	4.0	1.0	3.4	87	73	82	94	84
" 14	29.529	70.0	75.0	82.0	64.5	72.9	2.0	5.0	10.5	4.0	5.4	90	77	58	78	76
" 15	29.720	60.0	68.0	74.5	61.0	65.9	2.5	5.0	12.5	4.5	6.1	79	74	46	73	68
" 16	29.691	53.0	63.0	76.5	64.0	64.1	2.0	6.0	14.5	6.0	7.1	86	67	40	67	65
" 17	29.574	58.0	70.0	86.0	74.0	72.0	4.5	9.0	14.0	5.5	8.2	72	57	48	74	63
Mean of week	29.534	64.5	72.1	81.3	68.6		2.6	6.2	11.4	3.9		84	71	55	80	72
Sept. 18	29.478	72.5	78.0	78.5	72.0	75.2	2.5	7.0	6.5	2.0	4.5	88	70	71	90	80
" 19	29.523	70.5	74.0	78.5	63.0	71.5	1.5	3.0	8.5	10.5	5.9	92	86	63	45	71
" 20	29.673	52.5	58.0	68.5	58.0	59.3	4.0	6.0	12.0	5.0	6.7	73	63	42	70	62
" 21	29.802	52.0	60.0	68.0	56.5	59.1	2.5	8.0	12.0	4.5	6.8	83	55	42	71	63
" 22	29.831	52.5	64.0	75.5	61.0	63.2	3.5	9.0	17.0	5.5	8.7	76	53	31	69	57
" 23	29.622	58.0	69.0	82.0	66.5	68.9	5.5	9.0	13.5	4.0	8.0	67	56	46	79	63
" 24	29.372	61.0	75.0	85.0	69.0	72.5	3.5	4.5	11.0	3.0	5.5	79	78	57	85	75
Mean of week	29.622	59.9	68.3	76.6	63.7		3.3	6.6	11.5	4.9		80	66	50	73	67
Sept. 25	29.281	65.0	78.0	70.0	73.0	76.5	3.0	6.0	18.0	3.0	7.5	84	73	38	86	70
" 26	29.359	68.0	77.5	86.5	70.0	75.5	2.0	5.5	14.5	3.0	6.2	89	76	47	85	74
" 27	29.450	66.0	78.0	88.0	74.0	76.5	1.0	8.0	15.5	3.0	6.9	94	65	44	86	72
" 28	29.557	68.0	76.5	88.5	73.0	76.5	2.0	6.5	16.0	5.0	7.4	89	71	43	76	70
" 29	29.629	67.0	76.0	87.5	72.0	75.6	6.0	10.5	17.0	10.0	10.9	68	54	40	54	54
" 30	29.572	65.0	70.0	84.5	75.5	73.7	6.0	8.0	15.5	8.0	9.4	67	62	43	65	59
Sunday Oct. 1	29.407	72.0	75.5	79.0	71.0	74.4	3.5	4.5	6.5	2.0	4.1	82	79	71	89	80
Mean of week	29.465	67.3	75.9	86.3	72.6		3.4	7.0	14.7	4.9		82	69	47	77	68
Mean of Sept.	29.503	67.4	76.0	84.8	71.8		3.7	8.1	14.4	5.8		81	64	46	72	

made in St. Louis. By GEORGE ENGELMAN, M. D.

CLEARNESS OF SKY.					NO. OF DAYS			RAIN.			THUNDER-STORMS.	WINDS.
Sunrise.	9 A. M.	3 P. M.	10 P. M.	Mean.	Fair.	Variable.	Overclouded.	Days.	Hours.	Quantity.		
10	9	9	9	9	1	...	...	...	...	...	...	S.E., S.S.W., S.S.E.
10	9	8	10	9	1	...	...	...	...	...	...	S., S., S.S.E.
10	9	8	10	9	1	...	...	...	...	...	...	S., S.S.E.
9.7	8.9	8.3	9.7		7	...	...	...	...	...	...	
10	9	7	9	9	1	...	...	1	½	0.20	1	S., S.E.
10	9	4	10	8	1	...	...	...	...	...	...	S.W., S., S.S.W. 3, S.E.
5	7	1	1	3	...	1	...	...	...	...	...	S., S.W., N., N.N.W. 3.
4	4	8	10	6	...	1	...	...	...	...	...	N. 3 2, E.
10	8	8	8	8	1	...	...	...	...	...	...	E., W.S.W. 3 2,
10	8	3	...	5	...	1	...	...	...	...	...	W. 3, W.N.W. 4, N.W. 3.
9	8	3	10	7	1	...	...	...	...	...	...	N., N.N.W., N.E.
8.3	7.6	7.9	6.9	7	4	3	...	1	½	0.20	1	
9	6	3	1	5	...	1	...	1	1	0.73	1	E., W. 3, S.W. 3 2.
...	...	6	6	3	...	1	...	1	½	0.04	...	W. N.N.W., N.
...	4	...	9	3	...	1	...	1	½	0.07	1	N.N.E., E., W., S.E.
2	5	6	10	6	...	1	...	1	1	0.10	1	S.W., W. 3, N.W. 3.
...	...	9	10	5	...	1	...	...	...	...	...	N.W., N. 2 2.
10	9	10	10	10	1	...	...	...	...	...	...	N.N.E., N. 3, N.E.
10	9	9	10	9	1	...	...	...	...	...	...	E.N.E., E.
4.4	4.7	6.1	8.0	6	2	5	...	4	3	0.94	3	
3	1	...	5	2	...	1	...	1	2½	0.20	1	S. 2 3 2.
...	...	...	10	2	...	1	...	1	2	0.10	...	S.W., W., N.W. 3.
8	8	9	10	9	1	...	...	...	...	...	...	N.W. 2, N.N.W. 3 2.
10	9	10	10	10	1	...	...	...	...	...	...	N., N.E. 3 2, N.
10	10	8	10	9	1	...	...	...	...	...	...	N.N.E., N.E. 3, E.
5	6	6	...	4	...	1	...	...	...	...	...	E.S.E, S.E.
...	2	8	10	5	...	1	...	...	...	...	...	S.E.
5.1	5.1	6.0	8.0	6	3	4	...	2	4½	0.30	1	
8	8	5	10	8	1	...	...	...	...	...	...	S., S.W., S.E. 3.
10	10	5	9	8	1	...	...	...	...	...	...	S., S.E.
6	8	9	10	8	1	...	...	...	...	...	...	S.S.E.
9	10	10	10	10	1	...	...	...	...	...	...	N., N.N.W., N.N.W.
10	10	7	10	9	1	...	...	...	...	...	...	N., E. 2 2.
4	4	...	...	2	...	1	...	...	...	...	...	E.
...	2	4	5	3	...	1	...	...	...	...	...	
6.7	7.4	5.7	7.7	7	5	2	...	...	...	...	...	
6.7	6.6	6.0	7.9					7	8	1.44	5	S.E., next S. and E.

NOTES TO METEOROLOGICAL TABLES.

To reduce the space of the tables, we have given but the daily barometrical mean of four observations made at hours corresponding to the thermometrical and other observations.

The instrumental observations in all the tables of our report were made by Dr. George Engelman, of St. Louis, the necessary calculations are our own. Any error in these latter must be credited to us.

The barometer is corrected for temperature, and is in English inches. Location of barometer, corner of 5th and Elm Streets, St. Louis, 76 feet above the City Directrix, or 106.5 above low-water mark.

The calculation of relative humidity is made out by Haeghen's calculations, as published by the Smithsonian Institute, the centigrade scale as adopted in the institute tables being converted to Fahrenheit to meet the scale of the wet and dry bulb thermometers as given.

The scale of wind, as indicated by the small figures beside the cardinal and subsidiary points, means, 1, the lightest breeze; 2, an ordinary wind; 3, high wind; 4, storm or gale; 5, a violent gale, squall, or hurricane. Where no number is given, the wind is moderate, and would have to be designated by the figures 1 or 2.

The scale of relative humidity, from 0 to 100°, means, the former, the most complete absence of humidity; the latter, the most complete saturation.

To readers unfamiliar with the elements of meteorology, these explanations may be necessary.

Dew-point.—This will be found to be a few degrees below the degree of relative humidity. The following formula, however, will give it very accurately. Multiply the difference between the wet and dry bulbs by 103, divide this result by the wet-bulb temperature, and subtract the quotient from the temperature of the naked or dry bulb; the remainder will be the dew-point. This formula is founded on experiments from 20° Fahr. to 80°, and does not differ at either extreme from the most careful experiments. (See the Circular prepared by the Joint Committee of the Franklin Institute and the Philosophical Society, of Philadelphia.) For further information on this point, and on that of the tension of vapor, see Drake's work, vol. i. p. 602–3.—R.

APPENDIX.

NOTE ON THE SUPPOSED INTERFUSION OF MEASLES AND SCARLET FEVER.

REPORTS of cases supposed to show the amalgamation of these two zymotic poisons, were made to us during or subsequent to the epidemic prevalence of measles in St. Louis in 1852, and of scarlet fever in 1853 and 1855. We were not witness to any of the cases, and therefore can speak of them only in the general terms they were described to us. Their precursory stage presented the catarrhal symptoms of measles; to these were attached the anginose complication of scarlet fever; efflorescence appeared on the third or fourth day, but not so clearly defined as that of measles alone, nor yet that of scarlet fever, but the mingling of the features of both eruptions; it would present the large patches of scarlet fever with the crescentic outline of measles; roughness of the surface was perceptible, and the hue of the eruption was intermediate of the two diseases. Desquamation of the cuticle was noticed in some instances; the eruption lasted from two to four days. Dr. George Engelman's attention was particularly given to the subject of the supposed mingling or mutual modification of these eruptive fevers, and we present in brief the conclusions he entertains on the subject.

"Careful observation of the course of a number of epidemics of the eruptive fevers referred to, has led me to believe that the views generally accepted in regard to them are in some respects erroneous, and that our knowledge of these diseases is yet very incomplete.

"I have been brought to the conviction that an epidemic of scarlet fever can, and often does, change gradually into one of measles, and that the transition form is the disease that, by the German, but not by the English writers, is alluded to under the term 'Rubeola,' and which is here occasionally popularly distinguished as 'French

measles,' and in some parts of Germany is known to the people by the title of 'Roethela.' It is here not recognized by the profession by any distinct title.

"This form of eruptive fever appears to have been overlooked by physicians and writers in this country and in England; while in Germany it is considered a variety of the measles proper, or more commonly as a variety of scarlet fever. Some pathologists have supposed it to be a hybrid generated where epidemics of scarlet fever and measles meet.

"I have no doubt, from my observation, that such a disease as the 'Rubeola' of the German writers exists, and that it is neither a hybrid of both the others, nor a variety of one or the other, but a transition form between them.

"The most curious fact in the history of these three different forms of disease, is that each form protects the system from a second attack similar to it, but not perfectly from attacks of the other, so that a subject may have all three forms one after the other, and this further accounts for the frequent observation of a second attack of measles or of scarlet fever, which every physician has seen or heard of. One of the diseases in these cases undoubtedly was the rubeola. I have attended several families in this city, all the children of which had all three forms.

"The principal characters of these three different forms are:—

"1st. Scarlatina. Eruption uniform over the whole body, or in large irregular blotches, not elevated above the surface, or with many *miliaria* like papulæ. Mucous membranes of the organs of deglutition affected, those of the organs of respiration primarily unaffected. Desquamation of cuticle generally in large laminæ or patches. Consecutive diseases principally parotitis and anasarca.

"2d. Rubeola. Eruption in spots (generally large) of an irregular angular shape, of a high color, elevated above the surface; redness disappearing under pressure of the finger, and generally reappearing first in the circumference. Mucous membranes of the organs of deglutition, respiration and vision affected; angina, cough, and coryza present. Desquamation furfuraceous, often slight, or none at all. Consecutive diseases, probably the same as those of both the other forms, as the eruption approaches the one or the other.

"3d. Morbilli. (I find it necessary to restore or rather limit this name to the 'Measles,' and the name of Rubeola to the second form described above.) Eruption in spots (generally smaller than

the foregoing), circular, or somewhat angular, of a paler rose color, elevated above the surface only in the centre, and redness reappearing there first after pressure with the finger. Mucous membranes of respiration and vision affected; those of deglutition free. Desquamation furfuraceous, generally slight, or entirely absent. Consecutive diseases always affections of the chest; pleuritis with exudations; pneumonia, or asthma.

"It is evident that intermediate forms must be common, and physicians not rarely disagree as to the nature of the disease; some claiming a certain case as scarlet fever, while others name it measles.

"In the winter of 1852–3, we had a well characterized, severe and malignant epidemic of scarlatina in St. Louis, as it was observed over a great part of the United States. In May and June, 1853, the scarlet fever was very characteristic, but the cases much milder.

"In the winter of 1853–4, the disease assumed the form of rubeola, approaching more to scarlet fever, yet the eruption was spotted, the angina characteristic; the consecutive diseases, those of scarlet fever. In the Medical Society it was spoken of as an epidemic of measles, when I alluded to its character approaching scarlet fever. But as spring advanced, the disease assumed more and more the form of rubeola, and finally became that of morbilli (measles).

"My observations in St. Louis in the years 1853 and 1854, induced me to consider these as three forms of disease, which occasionally change into one another. In other countries, or other climates, all of these forms may not exist, or their characters may be more distinctly marked, and transitions may never occur; but here all, I believe, who have observed with eyes open, will arrive at the same conclusions as myself. But to the facts observed in 1854.

"In May of that year, a family of two children (on Third Street) had that form of spotted scarlet fever approaching rubeola, prevailing since winter. In the last days of that month, another family of two children, living a few doors from and in frequent contact with the first, were similarly attacked; in both subjects the character of the eruption was that of spotted scarlet fever like that of the first children; the elder one had more blotches than spots with an ulcerated sore throat, and afterwards anasarca; the younger child had ulcerative angina and cough. At the same time, the last of May, the eldest of four children of another family (on Seventh Street), friends of the first, and in frequent contact with them, was attacked with what I pronounced spotted scarlet fever, or rubeola; the tonsils were much inflamed and ulcerated; at the same time the child

suffered from tracheal symptoms and conjunctivitis. The other three children of the family were attacked in the next six weeks, one after the other; the angina became less and less marked, with the catarrhal symptoms more and more prevalent in each consecutive case, and the last of the children had unmistakable measles (morbilli). The children of the first family had by this time recovered, and being considered exempt from contagion, often visited their sick friends, when one of them was again taken with an eruptive fever which now had all the symptoms of measles (morbilli), and was pronounced such by the physician, Dr. Wislizenus; the other two families I attended myself. We find here cases of scarlatina in the first family bringing on scarlatina in the second, rubeola in the third, and this gradually changing into morbilli, which in turn brings on morbilli in the first family.

"It only remains to state that the morbillose character remained prevalent through the summer, until all eruptive disease disappeared. Late in the autumn cases of scarlet fever reappeared, but assumed through the winter the form of rubeola, generally called by our physicians measles, but distinguished by the symptoms enumerated above. I have seen the disease in a child I had treated only nine months before, for a well-defined attack of morbilli. As spring advanced, the eruption assumed more and more the form of measles proper, though I have seen a few perfectly distinct cases of true scarlet fever also, and even some very malignant and rapidly fatal cases of this form have occurred here at the same time."

Stage of Water in the Mississippi River at St. Louis, during the Great Rise in June, 1851. *Time of observation,* 6 *P. M. daily.*

	Below City Directrix.	Above Directrix.	Daily fall.	Daily rise.	
	Feet.			Feet.	
June 3	4.55	...	...	...	
" 4	3.74	...	...	0.81	
" 5	2.50	...	...	1.24	
" 6	0.94	...	...	1.56	
" 7	...	0.70	...	0.76	
" 8	...	1.75	...	1.05	
" 9	...	2.38	...	0.63	
" 10	...	2.80	...	0.42	Greatest height of water.
" 11	...	2.72	0.08	...	
" 12	...	2.40	0.32	...	
" 13	...	2.15	0.25	...	
" 14	...	2.00	0.15	...	
" 15	...	2.05	...	0.05	
" 16	...	2.00	0.05	...	
" 17	...	1.66	0.34	...	
" 18	...	1.70	...	0.04	
" 19	...	1.75	...	0.05	
" 20	...	2.00	...	0.25	
" 21	...	2.41	...	0.41	
" 22	...	2.45	...	0.04	
" 23	...	2.30	0.15	...	
" 24	...	2.08	0.22	...	
" 25	...	1.88	0.20	...	
" 26	...	1.70	0.18	...	
" 27	...	1.58	0.12	...	
" 28	...	1.38	0.20	...	
" 29	...	1.16	0.22	...	
" 30	...	1.05	0.11	...	
July 1	...	0.96	0.09	...	
" 2	...	0.93	0.03	...	
" 3	...	0.93	...	...	River at a stand.
" 4	...	0.70	0.23	...	
" 5	...	0.66	0.04	...	
" 6	...	0.70	...	0.04	
" 7	...	1.85	...	1.15	
" 8	...	0.75	1.10	...	
" 9	...	0.40	0.35	...	
" 10	...	...	0.40	...	Level of directrix.
" 11	0.44	...	0.44	...	
" 12	0.74	...	0.30	...	
" 13	1.00	...	0.26	...	
" 14	1.22	...	0.22	...	
" 15	1.80	...	0.58	...	
" 16	2.10	...	0.30	...	
" 17	2.65	...	0.55	...	
" 18	2.85	...	0.20	...	
" 19	3.20	...	9.35	...	
" 20	4.00	...	0.80	...	
" 21	4.55	...	0.55	...	

The highest stage of water, June 10, 1851, was 4 feet 9½ inches below the highest attained in the great rise on June 27, 1844.

The point of observation and of comparative measurement—the City Directrix—is the curb-stone on the river bank, 30.5 feet above low-water mark.

Average Rain in St. Louis in 18 *Years, from* 1837 *to* 1854.

	Average.	Minimum.		Maximum.
January	1.88 in.	0.45,	1842	4.18, 1849
February	2.81	0.56,	1849	6.74, 1851
March	3.48	0.79,	1858	7.66, 1852
April	4.00	2.28,	1845, 1852	7.68, 1850
May	4.83	2.38,	1841	11.26, 1844
June	6.15	1.47,	1850	17.07, 1848
July	3.79	0.84,	1846	9.44, 1849
August	4.09	0.45,	1844	9.74, 1848
September	2.50	0.30,	1844	5.81, 1849
October	3.26	0.96,	1858	8.74, 1847
November	2.96	1.10,	1845	8.63, 1847
December	2.66	0.71,	1840	10.90, 1846
Total	42.12	30.89,	1858	65.36, 1848*
May, June, and July together. Our rainy season.	14.17	7.14,	1841	30.54, 1848†

Altitude of St. Louis.—Nicollet, in his report (1840), calculates elevation above the gulf of the low-water mark, at 382 feet, but city Engineer's low-water mark was at that time about two higher than it is at present assumed to be, viz: then 28.5 feet, 30.5 feet below the City Directrix.

City Directrix (*i. e.* curb-stone intersection on the river bank, between Market Walnut Streets), therefore—

Vide Nicollet, is, above Gulf of Mexico . . . . . 410.5 f

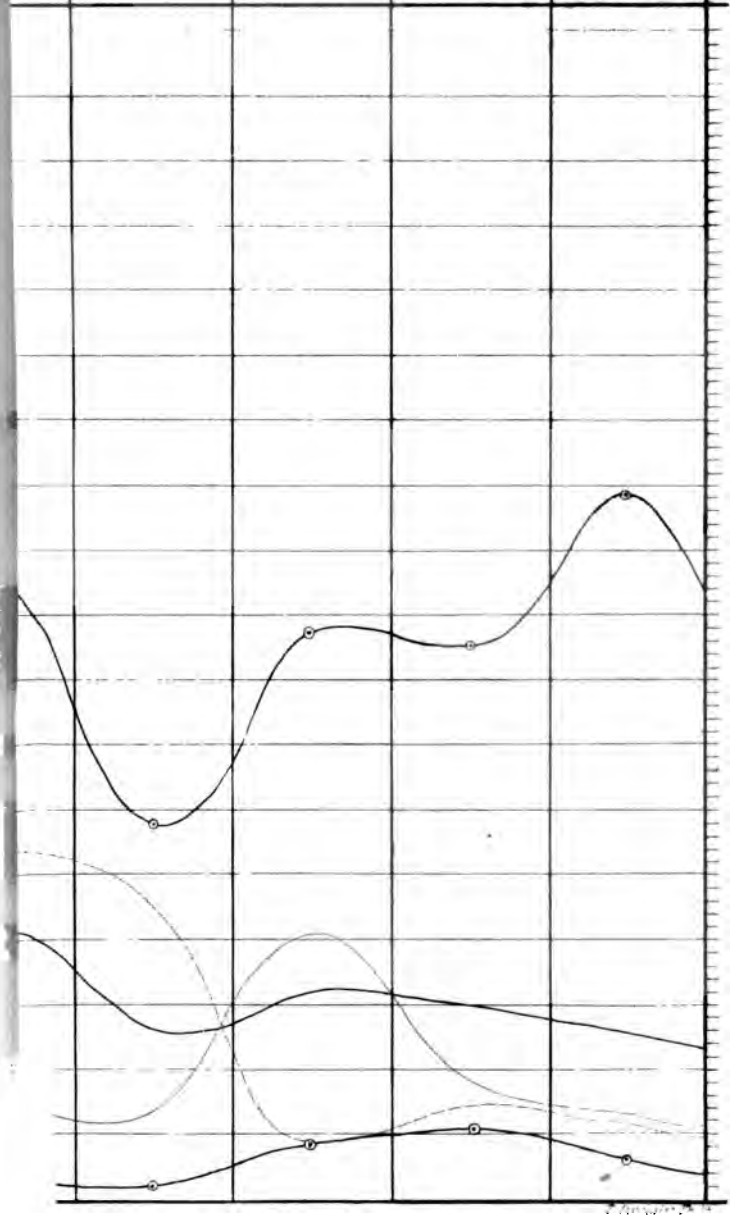
Same, per Wislizenus (Report, Senate Document, published 1848 or 9), is 420

Dr. G. Engelman calculates (from 282 corresponding observatio per his own and Dr. E. H. Barton's compared barometers, whi were made from January to May, 1854), the altitude of the Ci Directrix at 405.6 feet above the Gulf.

* Engelman.

† Our rainy season usually commences about the 25th April, and lasts until 10 July.

38°37' Long 90°15' for the years 1837 to 1851
et above the Gulf of Mexico.



EXTRACT FROM ST. LOUIS MEDICAL AND SURGICAL JOURNAL, JULY, 1852.

Table showing the Mortality in St. Louis, for the year 1851, *with the number of Deaths from each Disease, during the several months of the year.*

Name of Diseases.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Phthisis pulmonalis	12	10	20	16	21	13	20	16	15	18	22	21	204
Pneumonia, bronchitis, and pleurisy	16	8	21	13	19	7	11	6	13	9	10	17	150
Intermittent, remittent, and bilious fevers	5	...	1	1	10	7	26	28	35	35	13	8	169
Typhus, typhoid, and ship fevers.	8	38	18	18	18	15	39	24	29	32	26	15	280
Scarlet fever and malignant sore throat	1	1	...	...	3	1	1	...	2	1	...	3	13
Puerperal fever and child-bed	4	4	4	2	2	5	4	6	3	3	4	7	48
Measles	...	...	4	5	2	2	6	2	...	...	6	...	27
Hooping-cough	...	...	1	3	1	2	5	2	1	4	2	...	21
Cholera	2	1	1	9	49	430	231	45	9	...	3	...	780
Cholera infantum and teething	4	1	3	5	14	68	115	79	24	26	5	3	347
Diarrhœa, acute and chronic	6	5	12	6	18	39	50	50	28	30	30	12	286
Dysentery	4	4	4	2	12	33	47	63	28	28	21	11	257
Colica pictonum	...	...	...	...	...	...	...	...	1	...	...	...	1
Inflammation and congestion of the brain, and apoplexy	11	10	8	11	24	15	47	32	29	12	8	8	215
Diseases of the heart	3	2	3	2	...	2	...	5	3	3	3	2	28
Diseases of the liver	2	2	...	2	3	1	1	2	1	3	7	2	26
Ascites and general dropsy	...	3	2	6	3	1	5	2	3	6	9	4	44
Old age, debility, and decline	8	9	8	10	20	24	40	33	15	15	13	11	206
Cramp, spasms, and convulsions	10	10	16	2	8	20	29	18	15	11	11	5	155
Stillborn and premature birth	8	13	7	6	21	21	20	19	8	10	11	12	156
Sunstroke	...	...	...	...	1	3	6	6	4	...	...	...	20
Hemorrhage	...	...	...	1	...	...	...	...	2	...	2	1	6
Erysipelas	...	2	3	3	6	1	1	1	3	...	2	1	23
Mania-a-potu	3	...	3	4	5	1	...	4	1	3	1	...	25
Croup	2	1	...	2	...	1	1	...	3	5	4	7	26
Cancer	...	...	...	2	...	1	1	1	...	...	1	1	7
Casualties, including explosions, &c.	1	2	14	3	2	8	4	6	8	1	12	7	68
Smallpox	1	2	1	1	...	1	...	...	...	1	...	1	8
Hydrocephalus	3	1	2	2	1	4	5	3	1	1	2	2	27
Marasmus and atrophy	1	4	2	3	1	5	18	14	5	3	10	1	67
Diseases of the bladder and kidneys	1	...	1	...	...	...	1	...	...	1	...	1	5
Scrofula and spinal disease	1	...	1	...	...	...	...	...	...	...	...	...	2
Tetanus	...	...	...	1	...	1	1	1	1	2	...	...	7
Poisoned and felo-de-se	...	...	...	...	1	1	...	1	1	...	...	2	6
Constipation and intussusception	...	...	...	...	...	...	...	1	1	...	...	...	2
Influenza	...	...	...	...	...	...	...	...	...	1	...	...	1
Elephantiasis	...	...	...	...	...	...	...	...	...	...	1	...	1
Diseases unknown or not stated	16	25	22	32	44	49	104	50	47	39	43	36	507
Total for each month	133	158	182	173	309	782	839	520	339	303	282	201	4221

FROM THE ST. LOUIS MED. & SURG. JOURNAL, JULY, 1852.

The following meteorological observations for the year, with the accompanying remarks, have been kindly furnished by Dr. Engelman, of this city, a gentleman who has for a number of years paid great attention to this and kindred subjects, and whose well-known character for general scientific attainments is a sufficient guaranty for their accuracy.

We regret not having received them before the first part of the article was in type, that we might have compared the state of the weather with the prevalence of disease, but this the reader can do for himself by reference to the several tables.

Meteorological Table for St. Louis, during the Year 1851.

1851.	BAROMETER.	THERMOMETER.					
						GREATEST CHANGE IN 24 HOURS.	
	Mean.	Mean.	Lowest.	Highest.	Range.	Amount.	Date.
January	29.610	36.2	1.0	63.5	62.5	*f.* 40.0	28—29
February	29.658	38.8	14.0	69.5	55.5	*f.* 40.5	26—27
March	29.593	48.8	23.0	78.0	55.0	*r.* 29.5	21
April	29.514	52.8	34.0	76.0	42.0	*f.* 37.0	4—5
May	29.447	69.0	29.0	92.0	63.0	*r.* 33.0	2
June	29.426	72.9	54.5	92.0	37.5	*r.* 24.0	10
July	29.420	78.0	54.0	97.0	43.0	*r.* 25.0	11
August	29.478	75.6	61.0	94.0	33.0	*f.* 25.5	21—22
September	22.575	72.5	37.0	94.0	57.0	*f.* 23.0	13—14
October	29.406	56.1	26.5	81.5	55.0	*f.* 31.5	17—18
November	29.501	41.1	25.0	64.5	39.5	*r.* 29.0	4
December	29.637	30.5	2.5	64.0	66.5	*f.* 37.5	14—15
Whole year	29.522	56.0	2.5	97.0	99.5	*f.* 40.5	*f.* 26–7

STATE OF THE WEATHER.

1851.	PREVAILING WINDS.	Mean clearness of the sky.	NUMBER OF DAYS.				Quantity of rain and snow in inches.	Number of thunder-storms.
			Fair.	Variable.	No sunshine.	Rain or snow.		
January	W., then S.E.	6.1	15	16	0	8	0.61	1
February	W., then S.E.	4.5	11	7	10	10	6.74	3
March	W., then S.	6.3	16	12	3	7	3.14	3
April	W., then N.W.	6.2	17	9	4	8	4.70	4
May	S.E., then S.	5.4	12	17	2	4	2.83	3
June	S.E. and W.	4.4	10	16	4	11	6.19	16
July	S.W., then W.	6.1	19	11	1	8	1.77	6
August	S.E., then E.	4.9	10	19	2	9	8.97	14
September	S.E., then S.	7.5	22	7	1	4	0.49	0
October	W., then S.E.	6.2	20	10	1	5	1.51	2
November	W.	3.8	10	9	11	9	1.99	0
December	W., then N.W.	4.5	11	13	7	5	3.90	1
Whole year	W., then N.W.	5.5	173	146	46	83	42.84	53

REMARKS.

This table is the result of 5,000 to 6,000 observations, made in St. Louis, at the corner of Fifth and Elm Streets. Both are wide streets. The instruments are placed 106 feet above low-water

mark, the thermometer (one of Green's Smithsonian instruments) at a northern exposure, 20 feet above the street, 6 inches from the wall of the house. The times of observation are sunrise, 9 A. M., noon, 3 P. M., and 10 P. M.

The first column gives the mean atmospherical pressure, or mean elevation of the barometer of every month, reduced (for the sake of uniformity) to the temperature of the freezing point. It will be observed that the barometer is above the mean elevation of the whole year, from January to March, in September and December; in the other months it stands below the mean; it is highest in February, and lowest in July. This corresponds very well with the mean observations of twelve years, which show the barometer above the mean from January to March, below the mean from April to August (lowest in June), and again above the mean from September to December. No tabular statement has been given of the highest and lowest barometrical observations and of the range. I will here only state that the lowest occurred on April 4, 28.850, and the highest on January 31, 30.305. The range 1.455, near one inch and one half, is more than the usual range in St. Louis during one year, though the greatest range in 12 years amounts to one and three-fourths of one inch.

Examining a table of barometrical extremes, it is further seen that they are greatest from January to March, and in November and December, but the barometer is a great deal more stationary in the summer months, and especially from June to August; we then do not have those violent atmospherical commotions which are not unfrequent even in those months, on the eastern coast and in the greater part of Europe. The mean range of the barometer from November to March is over one inch, and from April to October under one inch; from June to August nearly half an inch.

The second to the seventh column relate to observations of the temperature and its changes. The second column gives the mean temperatures of every month. It will be seen that December was by far the coldest month of the year, and, as usual, July the warmest. January, February and March were warmer than usual, April much cooler, May and September warmer, June, July and August equalled the average temperature of those months, so did October and November, and December was colder. The mean temperature of the year very slightly exceeded the mean of 16 years. The years 1835, 1838 and 1843 were considerably colder, and 1833, 1842, 1844, 1845 and 1846 much warmer; the others were average years.

The third column gives the minimum temperature of every month. The fourth the maximums, and the fifth the difference between them, or the range. It will be seen that neither the greatest minima nor the greatest maxima have been reached in this year, and the range was not quite one hundred degrees; most in January, May and December, and least in April and (as usual) in June, July and August. The lowest temperatures observed in St. Louis in 20 years were—25°.0 in February, 1835; 18° in January, 1834 (both observed in the country some miles from the city); 12°.0 in January, 1852; 11°.0 in January, 1841; 8°.5 in February, 1836; 5°.5 in January, 1840; 5°.0 in February, 1838. In December, the temperature had never been as low as in this year; in December, 1845, when the river was frozen over from the 6th to the end of the month, it reached only 1°.0.

The highest temperatures observed in St. Louis were in 1833, 1834, 1838, 1841 and 1850, when the thermometer rose to over one hundred degrees. It did not rise over 95° in 1840, 1842 (from June to August, but in that year it rose to 98°.0 in September !), 1847, 1848 and 1849. In all the other years, from 1833 till 1851, the highest temperature rose from 97°.0 to 99°.5.

The range, or the difference between the maximum and minimum temperature of the year is in this year 99°.5; in other years (1832, 1833, 1835, 1836, 1838, 1841), it was from 6 to 26 degrees more, but frequently it is less; so 1837 and 1847, when it amounted only to 91 and 94 degrees. In this respect, also, the year 1851 proves to be an average year.

The 6th column is not usually found in meteorological tables, but I considered it important, especially in a medical point of view, as it is not so much the great range of the temperature which affects the animal system, as rather the suddenness of the changes. This column then gives the greatest change in every month which occurred in 24 hours. The letter F. indicates that it was a fall of temperature, and R. that it was a rise, which changes affect the system very differently. It will be observed that the greatest changes were always falls of temperature which took place from the noon or afternoon of one day, till the morning of the next; the rises occurred always from the morning to the afternoon of the same day. The greatest changes did not reach over 40°.5 in the winter months, and 25°.5 in the summer months. Is our climate really as changeable as often stated? The year 1851 appears to prove the contrary. In other years, however, some much severer

changes have occurred, and the last took place from the 16th to the 17th of March of this year, 1852, when the temperature fell 51 degrees in 17 hours. Greater changes even than that have taken place: in January, 1847, 56°, in March, 1839, 54°, and in March, 1833, 52°. On an average, the greatest and most sudden changes occurred in March, next in April, then in January, February and October; the least in July, then in August, June, September, May and November. The greatest change that I ever observed in July was only 32°, in 1846.

The last column in this table gives the dates on which these changes occurred, *e. g.* in January the temperature fell 40 degrees from the 28th to the 29th, etc.

It is proper to state here that these thermometrical observations have all been made in the heart of the city, though, as stated, in a fairly exposed situation. Comparative observations have proved that, in the country, the temperatures are very different. To be sure, in cloudy, or rainy, or in stormy weather, the temperatures are pretty much equal over town and country; but in clear still days, it is at sunrise generally very much cooler in the country, and especially in valleys, where moisture, evaporation and radiation are considerable; early in the afternoon, between 2 and 3 o'clock, it is on such days very often warmer in the country. Well compared and carefully observed thermometers have given me a difference at sunrise, sometimes of as much as 10 or 12 degrees, and in the afternoon occasionally 2 to 5 degrees, so that the daily range of the thermometer in the country is sometimes larger than in the city, by 12 to 15 degrees! Rarely the sunrise temperature is lower in the city than in the country, by 1 or 2 degrees.

The first column of the second table refers to the interesting phenomenon of the winds. It will be seen that west winds have been prevailing from January to April, and from October to December; southeast and southwest winds are predominant from May to September. If we compare the eight principal winds, we find in the six months, from November to April, the winds prevailing in the following order and proportion:—

W. 54, S. E. 30, N. W. 26, S. 23, S. W. 16, N. E. 13, N. 10, E. 9.

In the six months from May to October, the winds follow so:—

S. E. 45, W. 28, S. 27, S. W. 26, E. 20, N. W. 16, N. E. 14, N. 8.

West and southeast winds are therefore the prevailing winds the whole year round, and west more than southeast; the former more in the winter and spring, the latter in the summer and fall.

If we compare only the four cardinal directions, west, north, east, and south winds (when the southwest wind, for example, counts with the southerly and westerly winds), we obtain the following approximate proportions for the whole year:—

Westerly winds 10, southerly winds 10, easterly winds 8, northerly winds 5.

And for the six winter months:—

Westerly winds 6, southerly winds 4, easterly winds 3, northerly winds 3.

For the six summer months:—

Southerly winds 6, easterly winds 5, westerly winds 4, northerly winds 2.

Almost all the storms observed came from the west; the severer and longer continued ones occurred only in the winter months. In summer, some storms and squalls also took place from southwest and southeast.

The second column records the mean clearness of the sky according to the method adopted by Prof. Espy. A completely overclouded sky is designated by 0, a perfect clear one by 10, and the intermediate numbers express the greater or lesser clearness. The mean of 5 daily observations during each month is here given. It appears from this table that September, March, April, October, July, and January were the clearest months, and that in November, June, December, February, August, and May, the sky was most cloudy.

Similar results are obtained by the three following columns. The third gives the number of fair days, all together 173; most in September, October, July, April, and March; least in November, August, and June. The fourth column shows that variable days (where the sun shone part of the day only, whether with or without rains) were noted mostly in August, May, and June; the whole number amounted to 146. The fifth column gives the days when the sun did not appear at all, which numbered only 46 in the whole year, nearly one-half of them in February and November.

These three columns show that among the 365 days of the year, only the seventh or eighth day is entirely without sunshine, nearly one-half are clear or fair days, and the balance variable. The average number of fair days in 16 years was 132, the maximum 170 (in 1838), and the minimum 113 (1836). The year 1851, therefore, had more fair weather than is usual, even with our fair western climate.

The following column gives the number of days on which it rained or snowed, 83 in all, most in June (as usual), February, August, and November. The average number of raining days in 16 years was 89, varying from 115 (1836) and 106 (1844), to 81 (1847) and 78 (1838); June, May, and April always were those in which most rainy days occurred.

The quantity of rain and snow which fell during the year, is exhibited in the seventh column. It amounts to nearly 43 inches, of which the most fell in August, February, and June. The average quantity of the whole year, for 12 years, was 42 inches; as much as 65 inches fell in 1848, 53 in 1847, 32 only in 1842, 34 in 1843.

Most rain, on an average, falls in June, and also in May; mostly with thunderstorms in heavy showers; the driest months are generally February, January, and September. The quantity of rain that fell in the year 1851 was very unequally distributed over the continent of North America, or at least the Mississippi valley; while toward the north and west of us rains were abundant and even destructive; toward the south and east of us for the season, almost a complete drought prevailed, considerably injuring the crops. We were here just about on a line where the usual quantity of rain fell, and consequently our crops were superior to those south as well as north.

Only thirteen times in this year one inch of rain or more fell in one day, and only three times the rain gauge gave more than two inches: May 17, 2.48; August 3, 2.35; and December 29, 2.35 inches. In other years the quantity of rain in 24 hours is sometimes much larger. In the last 14 years, over 6 inches fell once in 1848, between 5 and 6 inches again twice in 1848; between 4 and 5 inches once in 1841, in 1847, and in 1850; and between 3 and 4 inches eight times. These very heavy rains are mostly accompanied by thunderstorms, and occur generally in May and June, but also in August, November, and December.

The eighth column states the electricity of the air as manifested by the number of thunderstorms in each month; the total number is 53, more than half of which occurred in June and August. The average number in 16 years was 49; ranging between 63 in 1834 and 1835, 59 in 1845, 35 in 1839, and 33 in 1840. The greatest number always occur in June, next in May, then in July, April, August, and least in December and January.

The different columns exhibiting the fairness or clearness of

weather, and the number of thunderstorms are added, because it is believed that these different meteorological phenomena have a very important bearing on human health, perhaps more than barometrical changes, and as much as the variations of the temperature.

FROM THE ST. LOUIS MEDICAL AND SURGICAL JOURNAL, 1854.

Meteorology and Mortality of St. Louis in 1852 *and* 1853. By GEORGE ENGELMAN, M. D.

In the tenth volume of this journal, p. 297 (July, 1852), I have published the result of my meteorological observations for 1851, intending to continue the same from year to year, and to connect them with a review of the sanitary condition of our city. Last year circumstances prevented this, but in vol. xi. p. 226 (May, 1853), I have given a synopsis of the meteorological conditions of our summer and fall months, likely to influence the general health, and of the comparative sickliness and mortality of those months during a series of years. I am now enabled to continue the meteorological tables commenced two years ago, and shall give at once those for 1852 and for 1853. I shall premise that the observations are made at the corner of Elm and Fifth Streets, both wide streets, running east and west and north and south, five squares east of the Mississippi River, the barometer elevated 105 feet above low-water mark, and the thermometer sufficiently removed from the wall of the house, and fully exposed to the open air in the shade, 20 feet above the street.

1852.	BAROMETER.				THERMOMETER.					
	Mean.	Highest.	Lowest.	Range.	Mean.	Highest.	Lowest.	Range.	GREATEST CHANGE IN 24 HRS. Degrees.	Date.
January	29.557	30.265	28.891	1.374	26.9	65.0	—12.0	77.0	*r.* 25.0	13th
February	29.480	29.915	28.681	1.234	37.6	66.5	14.0	52.5	*f.* 35.5	24th—25th
March	29.368	29.983	28.776	1.207	46.9	82.5	19.0	63.5	*f.* 51.0	16th—17th
April	29.248	29.598	28.839	0.759	52.1	81.0	29.0	52.5	*r.* 30.5	13th
May	29.413	29.744	29.111	0.633	66.9	91.0	42.0	49.0	*r.* 31.0	1st
June	29.453	29.775	29.187	0.588	71.2	94.0	47.0	47.0	*r.* 27.0	12th
July	29.465	29.636	29.198	0.438	78.0	95.0	57.0	38.0	*r.* 23.5	19th
August	29.464	29.664	29.259	0.405	73.5	90.5	55.5	35.0	*r.* 25.5	13th
September	29.493	29.657	29.201	0.456	67.2	91.5	42.0	49.5	*r.* 28.5	27th
October	29.468	29.750	29.106	0.644	60.8	88.5	42.0	46.5	*f.* 28.0	11th—12th
November	29.444	29.877	28.892	0.985	38.5	61.5	20.5	41.0	*f.* 27.5	11th—12th
December	29.431	29.866	28.837	1.029	34.5	60.0	15.0	45.0	*f.* 44.0	16th—17th
Whole year	29.440	30.265	28.681	1.584	54.5	95.0	—12.0	107.0	*f.* 51.0	March 16—17

1852.	PREVAILING WINDS.	Mean clearness of sky.	NUMBER OF DAYS				Quantity of rain or snow in inches.	Number of thunder-storms.
			Fair.	Variable.	No sunshine.	Rain or snow.		
January	W.	4.7	10	14	7	9	0.99	0
February	W.	4.8	9	13	7	5	2.12	1
March	W., then S.E.	4.8	11	16	4	9	7.66	10
April	W., then N.W. and E.	4.9	12	14	4	9	2.28	3
May	W. and S.E.	3.3	10	20	1	11	5.19	9
June	S.E., then S.W and W.	6.6	12	17	1	10	10.25	10
July	E. and N.W., then S.E.	7.0	15	16	...	6	3.36	5
August	S.E., then W.	6.0	12	14	5	7	1.60	3
September	S.E. and W.	5.9	15	12	3	5	1.47	...
October	S.E., then W.	5.1	10	14	7	13	5.26	...
November	W., then E.	2.8	2	15	13	10	3.29	1
December	W., then S.E.	4.5	4	21	6	12	3.48	2
Whole year	W., then S.E.	5.0	122	186	58	106	46.95	44

1853.	BAROMETER.				THERMOMETER.					
									GREATEST CHANGE IN 24 HRS.	
	Mean.	Highest.	Lowest.	Range.	Mean.	Highest.	Lowest.	Range.	Degrees.	Date.
January	29.606	30.024	28.854	1.170	34.1	64.5	9.0	55.5	*f.* 35.5	2d—3d
February	29.497	30.017	28.820	1.197	32.7	69.0	4.0	65.0	*f.* 31.5	1st—2d
March	29.476	29.961	28.951	1.010	42.0	81.0	21.0	60.0	*f.* 41.0	7th—8th
April	29.413	29.776	28.960	0.816	56.0	81.5	37.0	44.5	*f.* 39.0	13th—14th
May	29.440	29.897	29.025	0.872	63.6	91.0	41.0	50.0	*f.* 40.0	19th—20th
June	29.467	29.713	29.195	0.518	78.0	97.0	54.0	43.0	*r.* 29.5	18th
July	29.482	29.620	29.218	0.402	75.2	95.0	56.0	39.0	*r.* 25.0	8th
August	29.433	29.735	29.258	0.477	75.9	95.0	53.0	42.0	*r.* 29.0	29th
September	29.474	29.704	29.140	0.564	69.5	90.0	44.0	48.0	*r.* 27.0	24th
October	29.538	29.860	29.072	0.788	52.7	84.0	26.0	58.0	*r.* 33.5	18th
November	29.602	29.972	29.213	0.759	48.1	72.0	30.0	42.0	*f.* 26.0	1st—2d
December	29.506	29.875	28.824	1.051	33.5	57.0	12.0	45.0	*f.* 29.0	1st—2d
Whole year	29.494	30.024	28.820	1.204	55.1	97.0	4.0	93.0	*f.* 41.0	March 7—8

1853.	PREVAILING WINDS.	Mean clearness of sky.	NUMBER OF DAYS				Quantity of rain or snow in inches.	Number of thunder-storms.
			Fair.	Variable.	No sunshine.	Rain or snow.		
January	W., then N.W. and S.E.	5.2	12	12	7	5	0.52	...
February	W. and N.W.	5.9	14	9	5	6	1.67	...
March	W., then N.W.	5.5	12	14	5	5	0.79	...
April	W., then N.W.	5.1	9	18	3	9	3.24	10
May	W., then S.	5.9	13	16	2	7	3.64	4
June	S.E., then S. and S.W.	7.7	16	14	...	5	3.23	7
July	N.E., S.E., E.	6.3	14	17	...	7	4.10	5
August	E., then S.E. and W.	6.7	16	14	1	8	5.48	10
September	S.E., then S.	6.8	16	12	2	7	4.67	3
October	E., then W.	7.0	17	11	3	3	0.96	1
November	S.E.	3.6	5	20	5	7	1.51	1
December	W., then S.E.	5.2	9	18	4	5	1.08	...
Whole year	W., then S.E.	5.9	153	175	37	74	30.89	41

The first four columns of these tables give the mean atmospherical pressure, the highest and lowest, and the range of every month. The observations are made in English inches and decimals, and have been corrected for temperature (reduced to the temperature of the freezing point), according to the tables published by the Smithsonian Institution. It will be found that the barometrical phenomena in 1852 were irregular, and differing much from the mean results of a number of years before. Usually (and we find it so again in 1853) the first and the last months of the year are above the annual mean, and the atmospheric pressure is least in summer, generally in June, or sometimes in July. But 1852, only March, April, and May, and again December, were below the annual mean, April being by far the lowest month, and indeed unusually low. November was about equal to the mean, and all the other months above it. The annual mean is (also very low) one of the lowest observed by me in seventeen years; only equalled by that of 1846.

Those who wish to compare these data with my meteorological tables, published in the late Prof. Drake's work on the Mississippi Valley, pages 519, 531, etc., should understand that a different location of the barometer and a difference in the scale, and also a difference in the correction for temperature, alter the result considerably, and 0.100 ought to be deducted from the barometrical means as published in that work, in order to bring them to the same comparative standard with my present barometer in its present location. The mean atmospheric pressure of this place, 105 feet above low-water mark, is, therefore, 29.477 inches.

In the year 1853, January, and again October, November, and December, had a mean barometrical elevation above the annual mean; February was about equal to the mean; and the months from March to September below it. The lowest month is again in this, as in the preceding year, the month of April. The mean for the year is among the highest that have occurred for seventeen years, about equal to that of 1838, 1842, and 1845.

The barometrical variations were very great in 1852; the range in January being more than one and one-third of an inch, and in the whole year over one and one-half inch. In 1853, February showed the widest range, and the range of the whole year did not amount to one and one-fourth inch. It results from my tables, that ranges over one inch only occur in the winter months, December to March. In July and August, the range of the barometer does not amount to half an inch.

It is interesting to observe the regularity with which in our climate the barometer performs its daily variations, and how little those regular changes are influenced by accidental atmospherical disturbances. The seasons, it will be seen, exert only a slight influence on these variations. The barometrical observations for 1853, give the following results:—

The barometer rises from sunrise till 9 o'clock A. M., in spring and summer on an average 0.015 inch, in fall and winter 0.019; it then falls from 9 to 12 o'clock in spring and summer 0.025, in fall and winter 0.034 inch; and from 12 to 3 o'clock P. M., in the former season 0.036, in the latter 0.035 inch. From 3 till 10 P. M., it rises in spring and summer 0.025, in fall and winter 0.027 inch; and till sunrise it rises further in summer 0.027, in winter 0.019 inch. The difference between the highest (at 9 A. M.) and the lowest (at 3 P. M.), is on an average for the whole year 0.065 inch.

The mean temperatures, also, are calculated according to a different system from those published in Prof. Drake's work. These were the results of the observations made at sunrise and at 3 o'clock P. M. The present tables are based on four daily observations, made at sunrise, 9 A. M., and 3 and 10 o'clock P. M., and are believed to give more correct data. The results are invariably a little lower than those obtained by two daily observations; in the fall and winter months the difference is above one degree, in spring and summer about half a degree, and for the whole year the difference is between three-fourths and one degree.

The tables show that the mean temperature of 1852 was lower than that of 1853; January of the former year was, by far, the coldest month of both years, and, in fact, one of the coldest months in twenty-one years. I find in my records only the following nine months marked as having been colder: January, 1834; February, 1835; February and December, 1838; January, 1840; February and March, 1843; December, 1845, and January, 1847. The lowest temperature occurred on Monday, January 19, 12° below zero, which has been the lowest point reached since February 8, 1835, when the thermometer indicated 25° below zero. January 17, 1841, it was 11° below zero. In the year 1853, the temperature never came down to zero.

The highest temperature reached in 1852, was 95°, July 28 and 29; and July was, as usual, the warmest month of that year. In 1853, June was by far the warmest month, and the warmest June I

ever observed. Next to June came August, with an average mean temperature; but July was unusually cool, cooler than both the other months. I have never, in twenty-one years, seen this proverbially hot month as cool as in the last year, except in the years 1835, 1848, and 1849.

The highest temperature in 1853 (97°), occurred on June 20 and 21. My thermometer showed 100° or more, only in July, 1833, 1834, 1838, and 1841, and in August, 1834. From June 10 to 15, and again from the 18th to the 22d, the temperature was extremely warm, every day over 90°, and for three days in succession, between 75° at sunrise and 97° in the afternoon, with light southeasterly, southerly, and southwesterly winds; but the air was clear and dry, and no very deleterious effects on the general health were noticed; only thirteen deaths more occurred in those weeks than in the previous one. In August, on the contrary, the famous hot days, from the 10th to the 14th, with a temperature rather lower than in June (between 74° to 79° at sunrise, and 91° to 95°, in the afternoon), had a very marked effect on the health throughout a great part of the United States; the air was generally hazy, or light clouds floating in the sky; wind south, southeast, and southwest; the atmosphere saturated with moisture. The number of deaths in that week was 131; 47 more than in the preceding, and 24 more than in the following week.

The range between the maximum and minimum temperatures in 1852, was 7° over 100; and in 1853, as much below 100. In other years it has been oftener below than above 100°.

In the tables published in 1852, I have devoted two columns to the greatest changes of temperature occurring within 24 hours. I considered these observations as being of some importance in a medical point of view. I have continued these data in the tables for 1852 and 1853. The numbers in the first column give the degree of change; the letters *f* and *r* indicate whether the change consisted in a fall or a rise of the temperature. It will again be observed, that in the winter months the falls, and in the summer months the rises of temperature are the greatest, and the changes in winter are most always greater than in summer. In 1852, one of the great changes occurred, which are occasionally experienced here. From March 16 to 17, the temperature fell 51° in 17 hours. Greater changes have occurred in January, 1847 (56°), and March, 1839 (54°). In the present year, the thermometer sunk from Janu-

ary 5, at 9 o'clock A. M., to January 6 at sunrise, from 57.5° to 6°—51.5°. In 1853, the greatest change, 41°, occurred in March.

I repeat here, that the thermometrical observations made in the heart of the city, though in as favorable an exposure as possibly can be found there, cannot give a perfectly correct idea of the temperature of the whole surrounding country. In clear still nights, the radiation in the country is so much greater, that the temperature is often found to be as much as ten degrees below that of the city; especially where evaporation, which of course is greater in lower damp localities, and less in higher and drier ones, adds its refrigerating effects. In cloudy weather, when radiation is inconsiderable, and in stormy days, when the violent disturbances of the atmosphere equalize the temperature of different places, the difference is not great, or disappears entirely. On January 19, 1852, at sunrise, when my thermometer indicated 12° below zero, a well compared thermometer in the country ten miles southwest of the city, in a very exposed situation, showed 14°.

My thermometer fell to the freezing point, or below it, for the last time in spring 1852, on April 2, and in 1853, on March 28. In the fall, it reached that point for the first time in the former year on November 9, and in the latter year on October 24. The average of twenty years gives as the date for the last frost in the spring, April 6, and for the first frost in the fall, October 26. The latest frost observed in twenty years, occurred April 27, 1834, and May 2, 1851; the earliest, October 4, 1836, and October 15, 1845. The number of days between the latest spring frosts and earliest fall frosts varies between 173 (1836 and 1851), and 242 (1842), and is on an average 203. It must not be forgotten that the temperature of 32° indicates what is called a black frost, but in the country, especially in low and exposed places, the vegetation often suffers from a temperature which is several degrees above the freezing point.

The column of winds in both years, again shows the prevalence of western and next to them southeastern winds. Westerly winds prevailed in both years from January to May, and again in December, in 1852; also in November. The months from June to October (and November in 1853), show a preponderance of southeasterly and easterly winds; in July, 1853, an unusually cool month, northeast winds prevailed.

Nearly all the storms came from the west and northwest; the severer and continued ones occurred only in winter. Southern

storms occasionally take place in summer. The fact may not have been generally noticed that the great storms accompanied with violent changes of the barometer and thermometer regularly travel from west to east; it takes them about twenty-four hours to come from the Rocky Mountains to the Mississippi, and twenty-four hours more to reach from here to the Atlantic coast. Here, and still more so west of us, they are often accompanied with dry and even clear weather, while east of us, and especially towards the Atlantic slope, they often take the form of heavy rain or snow-storms.

The mean clearness of sky is calculated after the method adopted by Prof. Espy and the Smithsonian Institution; a completely overclouded sky is indicated by 0, a perfectly clear one by 10; the intermediate numbers, 1 to 9, express lesser or greater clearness. The means recorded in the table are those of five daily observations. The tables show for 1852, less clearness than in 1851, and for 1853 greater clearness. In 1852, the clearest weather occurred from June to September; in 1853, from May to October; the gloomiest in 1852 in May and November; in 1853, also in November. September is on the average the brightest, and November always the darkest month in the year.

The following column records the clear or almost clear days, which were less than an average in number in 1852, and more so in 1853; in November, 1852, only two clear days are marked down; in October, 1853, as many as 17. Variable days I call those where the sun shines part of the day only, and is partly obscured by clouds or haze; it may rain or snow on such days or not. The number of these variable days is generally greatest in May and June, and again in November and December. Dark days, when the sky was entirely overclouded, and the sun did not appear at all, dry or wet, occurred in 1852 to the number of 58, an unusually large amount for our climate. In 1853, only 37 such days were noted—a very small number. Such days are rare in summer and fall, but more common in winter, especially in January, February and November.

It rained or snowed in 1852 on 106, in 1853 only on 74 days; the average of a number of years in 89 days. The smallest number observed by me in any one year before the last was 78 days in 1838; the largest number 115 in 1836.

The quantity of rains and snow in 1852 was more than the average, which is 42 inches. In 1853, less rain has fallen than in the

fifteen previous years. In the year 1842, thirty-two inches, and in the following year thirty-four inches of rain had been the lowest before the last year. The largest quantity ever observed by me was sixty-five inches (more than double the quantity of 1853), in the year 1848. I may remark, that after the dry and warm year of 1842, a dry and cool year followed; and the year after that, 1844, was wet and hot, and remarkable for the great flood, and the very sickly summer and fall. That may occur again, and this year, 1854, may possibly correspond with 1843, and 1855 with 1844. Be that as it may, we find in the records of the past no just reason to expect the present to be a very wet year, though the last was very dry.

On an average, less rain (or snow) falls in January than in any other month, not quite two inches; and in both years, under consideration, not one inch fell. The quantity increases with every month till June; the average of which month is six inches. In 1852 ten inches fell in June, but in 1853 only three inches. From July to December, the average quantity of rain varies between two inches and a half in September, and four inches in July and August; in October and November it is three inches, and in December somewhat less.

The year 1852 was remarkable for the unusually large quantity of rain that fell in March, and again in October. The year 1853 had more rain from July to September, than from April to June, much more than the average of those months, a very unusual occurrence. To this fact, probably, viz: the dryness of spring and for summer, and the rains in the after part of summer, in a great part, we no doubt have to ascribe the unusual fertility of the last season, and the perfection to which fruit attained. In other parts of the country it was too dry, in a few also very wet, and the crops suffered in consequence.

In the year 1852, once (June 23) more than four inches of rain fell in twenty-four hours; once (March 12) more than three inches; once more than two inches, and ten times over one inch. In 1853, three times more than one inch, and four times more than two inches of rain were observed in twenty-four hours.

It may be stated that the quantity of snow (which in the tables is included in the quantity of rain) is very inconsiderable. Snow falls in our climate generally from November to March, four months, sometimes not before December, and rarely in April (in the last sixteen years, only in 1843, 1850, and 1851), and in none of

the winter months does not also fall rain, generally more than snow. The average quantity of snow from December to March is about half an inch in every month, in November one-fourth of an inch, and in April one-tenth of an inch only. The largest quantity of snow observed in one single month hardly exceeds one inch and a half (December, 1839, and December, 1846). The quantity of snow in 1852 was 1.06, and in 1853 was 1.86 inch. The last snow in 1852 fell February 28, and in 1853 March 6; the first snow in fall 1852, November 16, and in 1853, December 17.

The number of thunderstorms passing over this place was 41 in 1852, and 44 in 1853, in both years less than the average, which I find to be 49. In 1852, the largest number occurred in March, May, and June; both the latter months are usually those in which thunderstorms prevail, but the average number in March is only between two and three. In 1853, April and August had each ten storms, May and June together only eleven. The average number for April is between five and six, and for May and June together between eighteen and nineteen.

[NOTE.—These tables are taken from the Weekly Tables of Interments, published by the *City Register*. They differ, to some extent, from our own computation.—R.]

Table showing the Mortality of St. Louis, in 1852, *among the different Classes of the Population, and in the Aggregate.*

1852.	WHITES.				COLORED.	Total.	Per mille.
	Males.	Females.	Children 5 y'rs old, or under.	Total.			
January	117	80	79	197	8	205	2.1
February	138	90	99	228	7	235	2.3
March	144	84	118	228	5	233	2.3
April	145	128	135	273	7	280	2.8
May	180	114	141	294	7	301	3.0
June	353	252	250	605	4	609	6.1
July	504	355	420	859	13	872	8.7
August	352	244	278	596	10	606	6.1
September	275	149	187	424	11	435	4.3
October	242	139	160	381	11	392	3.9
November	199	147	144	346	4	350	3.5
December	168	130	120	298	7	300	3.0
Total	2,812	1,912	2,131	4,724	94	4,818	48.2

Table showing the Mortality of St. Louis, in 1853, *among the different Classes of the Population, and in the Aggregate.*

1853.	WHITES.				COLORED.	Total.	Per mille.
	Males.	Females.	Children 5 y'rs old, or under.	Total.			
January	179	126	155	305	8	313	2.8
February	157	120	155	277	11	288	2.6
March	158	115	140	268	14	282	2.5
April	149	135	146	284	14	298	2.7
May	132	114	148	246	9	255	2.3
June	175	137	196	312	14	326	3.0
July	236	135	224	371	9	380	3.4
August	265	157	238	422	4	426	3.9
September	284	134	170	418	7	425	3.9
October	216	130	177	346	9	355	3.9
November	163	103	127	266	6	272	2.5
December	142	91	105	238	6	239	2.2
Total	2,251	1,497	1,981	3,748	111	3,859	35.1

In examining these tables, it must be borne in mind that it is not only the deaths that take place among our resident population which are recorded there, but that the number is largely increased by the deaths occurring among the floating population, not included in the census tables, and the numerous travellers and immigrants, who not rarely arrive here in the last stage of sickness, only to people our burying places. I assume the population of the city and suburbs, in 1852, to have been 100,000, and in 1853, 110,000, which numbers, however, are hardly large enough to include our floating population. The last column in the tables is based on this calculation. It results from this column, that in 1852, which was the last of our four cholera years, 48 died among 1,000, and in 1853, only 35; that from June to September, 1852, the number of deaths ranged from 4 to nearly 9 in 1,000 in one month, but that in 1853, the number never reached 4 in a thousand.

In both years the number of deaths of white females was 40, and of white males 60 per cent., which is owing partly to the greater exposure and consequent sickness men are subjected to, but partly, also, to the absolutely much larger number of males in our community.

In 1852, the number of deaths of white children of five years and under, was, in proportion, smaller than in 1853; in the former year it was 45, in the latter 53 per cent. The cause is to be found in the fact, that cholera attacked and destroyed fewer children, in

proportion, than adults; we find the mortality among children in the summer months, when cholera prevailed, not to have been much more than one-third of the whole number of deaths. It is further to be found in the lower degree of heat which prevailed in the summer of 1852, and in the absence of fatal infantile epidemics. In 1853, on the contrary, scarlatina of a very dangerous character, was prevalent for the four or six first months, almost exclusively among children; the proportion of infantile mortality, from January to April, was 52 per cent. In the months of June, and principally August, the heat of the weather found its easiest victims among young children, and we see the proportion accordingly much greater; in June, July, and August together, almost 60 per cent.

In the statistical investigation, published in this journal in May last, p. 227, etc., I have already attempted to show the influence of atmospherical agents on the health of the summer and fall of 1852. It now remains to bring those tables down to the end of last year (1853), and by them either to confirm or to modify the results arrived at.

The percentage of sickness (see May number, p. 228) I find for July 8, for August 12, and for September 13. The percentage of mortality was in July 10, in August 11, and in September 11. The quantity of rain in May, June, and July, was nearly 11 inches, and in August and September a little over 10 inches. The mean temperature of June (78°) was higher than I ever observed it in that month; that of July (75°) was lower than the average; that of August (76°) and September (69°) is about the average temperature for both these months. These meteorological conditions would seem to indicate a sickly summer with a more healthy fall, but the low mean temperature of July evidently prevented much sickness in that month, which might have been expected from the want of humidity in that and the two preceding months. In August we find a little more than the average sickliness, owing, no doubt, to the excessive heat of the second week of that month (see above), but less than the average mortality. In September, sickliness as well as mortality were below the average.

The results, therefore, obtained from a discussion of the statistical tables, above mentioned, and which have been given (vol. xi. pp. 230 and 231), are mainly confirmed by the experience of last year; I would make only two slight alterations: § 4, page 230, ought to read, "Less than 12 inches of rain in May, June, and

July, is always accompanied by great sickliness and mortality in July, 'unless this month should have an unusually low mean temperature.'"

And § 12, page 231, should be modified: "Higher or lower mean temperatures of August and September do not appear to influence the amount of sickness in the fall season 'to any great extent.'"

The Meteorological Causes of Climatic Diseases in St. Louis. By GEORGE ENGELMAN, M. D. [For Dr. Reyburn's report on Epidemics.]

The observation of our diseases in a medical practice of nineteen years in this city, and meteorological observations regularly made during all this time, have enabled me to bring together a series of facts in such a way as to lead to some unavoidable deductions, which I think will go a great length in giving a clearer insight into the casual connection of humidity and temperature, and sickliness and mortality in the summer and fall months.

These investigations have not been instituted to build up or favor any one theory, but as well as possible to get at the truth.

Our sickly season comprises the months of July, August, and September; June and October often come in for their share; but every practising physician will concede that, in the first named three months, the greatest amount of sickness and deaths occurs in our climate. To these three months, therefore, I shall confine myself.

The different data resulting from my observations and bearing on the subject before me, I have arranged in the following table:—

Statistical Table showing the Comparative Sickness and Mortality in St. Louis, in the months of July, August, and September, and the Influence of Heat and Moisture thereupon.

	Percentage of sickness.			Per mille of mortality.			Quantity of rain.		Mean temperature.			
	July.	August.	September.	July.	August.	September.	May, June, and July.	August and September.	June.	July.	August.	September.
1836 . . .	9	12	*c*15	...	...	...	...	...	74.7	78.5	73.6	67.7
1837 . . .	7	11	*c*13	...	...	...	...	...	72.0	78.1	75.4	66.8
1838 . . .	9	10	*c*13	...	...	...	...	...	75.7	*b*81.6	80.4	68.6
1839 . . .	9	15	*c*19	...	...	...	*c*29.90	*c*5.34	70.3	76.3	74.3	64.4
1840 . . .	...	...	...	...	...	...	13.21	11.11	77.2	76.9	76.0	65.7
1841 . . .	*b*15	10	8	*b*6.7	5.5	3.7	*b*7.14	5.85	77.4	*b*80.9	77.1	68.0
1842 . . .	*b*12	7	11	2.4	*c*2.7	2.2	*b*10.10	*c*4.81	72.7	75.8	78.3	71.8
1843 . . .	9	11	*c*14	5.6	*c*6.1	4.3	*b*10.59	*c*3.51	73.8	79.1	76.8	73.2
1844 . . .	9	18	*c*23	5.6	*c*6.0	4.5	*c*26.24	*c*0.75	75.5	*b*81.6	77.4	67.9
1845 . . .	10	11	*c*14	*b*4.9	4.5	4.5	19.18	7.26	74.7	79.7	77.5	70.8
1846 . . .	*b*12	11	10	*b*5.7	4.8	4.5	*b*9.80	9.57	70.8	*b*81.4	78.6	74.0
1847 . . .	10	10	*c*16	*b*6.5	5.9	5.5	18.34	*c*4.16	72.0	78.6	74.7	69.1
1848 . . .	*b*11	9	9	*b*4.4	3.8	3.1	*c*30.54	10.86	72.5	73.7	74.9	64.4
1849*a* . . .	*b*23	6	5	*b*31.4	5.5	4.1	18.57	10.96	75 3	75.1	73.8	68.5
1850*a* . . .	*b*15	13	9	*b*12.8	7.6	3.5	13.77	5.84	76.8	*b*80.8	81.5	69.3
1851*a* . . .	*b*17	11	9	*b*8.6	4.6	3.6	*b*19.79	9.46	72.9	78.0	75.6	72.5
1852*a* . . .	*b*12	11	11	*b*6.8	6.6	4.0	18.80	*c*3.07	71.5	78.5	73.9	68.7
1853 . . .	8	12	*c*13	3.3	*c*4.0	3.8	*b*10.97	10.15	78.0	75.2	75.9	69.5
1854*a* . . .	*b*15	9	7	*b*11.8	7.1	4.9	*b*10.43	*c*3.24	75.3	*b*83.0	80.8	75.0
Average of 18 years	12	11	12	*d*8.3	5.3	4.0	*g*16.15	6.62	*h*74.6	79.0	76.4	69.2
Average of 13 ordinary years	10	11	14	*e*5.0	4.8	4.0						
Average of 5 cholera years	16	10	8	*f*14.3	6.3	4.0						

(*a*) Cholera years.

(*b*) Indicates those years where the greatest sickness and the greatest mortality prevailed in July, and where small quantity of rain and high temperature in July seemed to favor the development of disease in that month.

(*c*) Designates those years when the greatest sickness prevailed in September, and the greatest mortality in August, and when a large quantity of rain in May, June, and July, and a small amount in August and September appeared, to furnish the most favorable condition for fall sickness.

(*d*) Average of 14 years.

(*e*) Average of 9 ordinary years, without cholera.

(*f*) Average of 5 cholera years.

(*g*) Average of 16 years.

(*h*) Average of 19 years.

This table is divided into four parts. The first part shows the percentage of sickness in July, in August, and in September of every year since 1836 (with the exception of 1840, when I was absent from here). By percentage of sickness, I understand the

percentage of the total amount booked by me in every year. This I confess is the weakest part of my argumentation, because the practice of one single physician may justly be said not to be a very safe indication of the greater or less sickness in a city; and the more so as surgical and obstetrical cases have not been separated from the purely medical practice. Nevertheless, I have reason to believe that, if the numbers given in this table do not give the exact mathematical truth, they come sufficiently near it to make them proper elements in this investigation.

The second part gives the mortality per mille for the whole city in the same months of July, August, and September, since the year 1841, the first year in which a proper registration was organized by the city government.

The third part gives the quantity of rain which fell here in the months from May to September of every year since 1839. The first column shows the amount of rain in the three months, May, June, and July; and the second column, that in August and September. Why I have arranged this table in that way I will show hereafter.

The fourth part gives the mean temperatures of June, July, August, and September, since 1836.

Let us now return to the first part. In examining these three columns, giving the percentage of sickness in July, August, and September, we discover the fact that either July or September [and never August] was the most sickly month; and that was the case not only for the three months named, but for the whole year; the greatest amount of sickness has always occurred in July or in September. The cholera has not varied that fact, for, in the cholera years, July has always been the most busy month with the physicians here.

On the above table, all the years in which July was the most sickly month, are indicated by *b*, and those when in September occurred most sickness, by *c*.

A careful examination of the records of our cemeteries proves that principally July, and next to it August, are the months in which the greatest mortality has prevailed in Illinois. I find only one exception—in the year 1851, one of our cholera years—where in June the mortality was greater than in any other month of the year. The years with the greatest mortality in July are designated by *b*, and those where it occurred in August, by *c*.

Comparing these three columns with the first three, we notice the

fact that generally the years wherein I observed most sickness in July, show also the greatest mortality in that month; and again, the years in which the greatest amount of sickness occurs in September, usually show the highest mortality in August (not in September), and sometimes even in July. All the five cholera years belong to the first class, and also the years 1841, 1846, and 1848; the year 1842 alone seems to be an exception, with more sickness in July, and greater mortality in August.* To the second class belong the years 1843, 1844, and 1853, with the greatest mortality in August; and 1845 and 1847, with greater mortality in July.

The two following columns exhibit the amount of rain that fell in summer and fall. The first column comprises the months of May, June, and July, together, and the second those of August and September. I have to explain here why I have thought it necessary to bring May and June in here. These months constitute our rainy season, when hot and sultry weather, a humid atmosphere, frequent thunderstorms, and heavy, though often short showers of rain, prevail. The rain of these months, I believe, and I think I can prove to you, lays the foundation to the fall sickness. In July the rains are generally much less, and therefore cannot have so much influence on the health. It will be noticed, that the quantity of rain in these months varies from only seven to more than thirty inches, and that the average is somewhat over sixteen inches, which is nearly two-fifths of the amount for the whole year.

Those years in which the quantity of rain amounted to ten inches or less, are indicated by figures with *b*, while those with twenty inches of rain or more are marked with *c*.

The second column of this part of the table gives the quantity of rain for August and September. August is sometimes a wet month, but September is generally very dry; the amount of rain for these two months varies between less than one and eleven inches. Those with less than five and one-half inches are marked thus *c*.

These two columns compared with the former, show that generally where there is little rain in the summer months, there is much sickness, and usually also mortality in July; but whenever there is much rain in these months (May to July), we find less sickness in July. The former was the case in 1841, 1842, 1846, and 1854; the year 1843, however, presents seemingly an exception; the second

* This exception may not in reality exist, as the register's mortuary reports, as preserved for this period, are extremely defective.

case occurred in 1839 and 1844, but 1848 is a remarkable exception.

And we find, further, that whenever the quantity of rain in these three months amounts to more than twenty inches, we may expect a sickly fall, great mortality in August, and still more though less fatal sickness in September. This we find to have been the case in the years 1839, 1844, 1845, and 1847, and even in the cholera year 1852, to some extent at least. But the deleterious influence of the heavy summer rains seems to be neutralized by unusually wet weather in the fall, say more than 10 inches of rain in August and September. Such was the case in 1840 (of which year, however, no records of sickness or mortality are preserved), in 1848, and 1849; the year 1853 seems to form an exception.

The four following columns give the mean temperatures of June, July, August, and September of the years in question. The highest temperatures in July—those over eighty degrees—have the Italic *b* annexed to the figures.

The discussion of these last columns gives rather negative results. A high temperature in July, to be sure, appears to be directly connected with a great amount of sickness in that month; it was so in 1841, 1846, 1850, and 1854 (which latter years, however, were also cholera years). But in 1838, and in 1844, when the mean temperature of July was, with one exception, higher than in any other year observed, there was much more sickness in September than in July. In the first of these years, 1838, no observations on the rain had been made, but in 1844 an immense amount of rain fell from May to July.

In regard to the temperature of the other months, we find August and September sometimes sickly and sometimes healthy, with both a high or a low mean temperature. So in 1838 and 1843, the fall was warm and sickly; in 1839, 1844, and 1847, it was cool and sickly. In 1846 and 1854, September was warmer than in any other year observed, and very healthy, while in 1848 it was comparatively cool and quite healthy.

At the foot of the table the means have been given—on the first line the means of all the observations, and below them the means of all the data, excluding the cholera years; and in the third line, the means of these five cholera years.

It results from this part of the table, that, on an average, as much sickness occurs in our city in July as in September, but the mortality in the former month is much greater; it is intermediate in

August. If we exclude the anomalous years, when the great epidemics prevailed, we find sickness decidedly more prevalent in September, but mortality greater even than in July. August remains intermediate, showing a little more sickliness, and a little less mortality than July.

I recapitulate the results of the foregoing investigations, leaving out the cholera years.

1. Either July or September are here the most sickly months in the year. On an average, more sickness occurs in September than in July.

2. Either in July or in August, the greatest mortality occurs. On an average, more deaths occur in July than in August, and in August more than in September.

3. The greatest mortality accompanies the greatest sickliness in July, while the years when the greatest sickliness prevails in September, generally show the greatest mortality in August, rarely in July.

4. Less than twelve inches of rain in May, June, and July are always accompanied by great sickliness and mortality in July, unless this month should have an unusually low mean temperature.

5. More than twenty inches of rain in May, June, and July generally precede great mortality in August, and a vast amount of sickness in September.

6. This is especially the case whenever the quantity of rain in August and September is below five inches.

7. But the rule 5 suffers an exception, whenever the quantity of rain in August and September amounts to more than nine or ten inches. Then the fall is comparatively healthy, even if the summer be wet.

8. Even with a smaller quantity of rain from May to July, there is much sickness in August and September, whenever the amount of rain in these last months is unusually small, say below three or four inches.

9. Less than ten inches of rain from May to July always indicates a healthy fall.

10. Great heat in July (over eighty degrees mean temperature), is generally accompanied by considerable sickliness and mortality in that month.

11. But when this great heat in July is accompanied by much rain (over twenty inches), in May, June, and July, the amount of sickness in July is in general not so great.

12. Higher or lower mean temperatures of August and September do not appear to influence the amount of sickness in the fall season to any great extent.

The main points of the foregoing twelve paragraphs may safely be assumed to be:—

A wet summer is a healthy summer.

A wet fall is a healthy fall.

A dry and hot summer is a sickly summer.

A dry fall, whether warm or cool, is a sickly fall.

A wet summer and dry fall combined, make the most sickly fall.

These, it may be said, are old observations, well known to the people, especially in the country and to country practitioners. I fully admit that! All my ambition here consists in substantiating these old maxims by precise statistical and meteorological observations.

I have been careful so far not to express an opinion as to causes, but have only given facts, which any one is at liberty to consider as mere *coincidences*. But if the same coincidences are observed for a length of time invariably, we are permitted, I should think, to presume that they stand in some essential or causal connection.

Without entering now further into that question, I shall only indicate a few, as it seems to me, unavoidable conclusions.

1. Moisture has more to do with our climatic fall sickness than heat.

2. But it is not the moisture itself, the precipitated humidity of the atmosphere, which produces sickness; on the contrary, the wet seasons are the more healthy ones.

3. It is rather the evaporation of this moisture in a dry season, after a wet one, which brings on sickness.

Whether this effect is produced by the simple physical process of the formation of water gas (evaporation), or by this gas holding in solution or carrying with it other volatile substances, would lead too far here to examine. I will only state that, to me, the latter is the more probable supposition, and that it appears to lead us back to the old miasmatic theory.

The question will have arisen, what influence atmospherical pressure may exercise on the character and prevalence of our summer and fall diseases? A careful analysis of my barometrical observations has given only negative results. During August and September, the atmospherical pressure, which from April to July

had been below the annual mean, again reaches that point, and exceeds it in the following fall and winter months. The barometrical changes are neither considerable nor rapid in August and September, though a little more so than in July, which month shows greater steadiness than any other month in the year; in August and September, these changes are much smaller than late in the fall, winter, or spring.

In order to show the influence of cholera on general mortality, we present the following table, exhibiting the monthly mortality of fourteen successive years in St. Louis, during five of which cholera prevailed. The computations are made out from the weekly mortuary returns preserved in the City Register's office.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total each year.	Population of mortuary limits.
1841 . .	26	25	21	36	51	69	200	164	110	111	67	80	960	30.000
1842 . .	51	74	57	31	32	64	82†	93	75	88	37	36	720	34.000
1843 . .	26	39	45	30	33	66	221	233	164	134	83	86	1160	38.000
1844 . .	92	98	80	90	72	112	233	258	193	147	95	109	1579	43.000
1845 . .	106	64	83	77	129	192	235	216	217	163	111	108	1701	48.000
1846 . .	110	117	146	131	121	180	309	257	244	196	124	120	2055	54.000
1847 . .	153	156	158	157	168	247	401	367	342	277	222	218	2866	62.000
1848 . .	202	189	194	184	199	287	305	276	217	226	189	235	2703	70.000
1849* . .	292	251	318	428	863	2423	2514	444	331	256	200	173	8495	80.000
1850* . .	247	157	197	233	348	542	1155	688	312	239	249	172	4539	90.000
1851* . .	146	167	194	193	211	1010	863	463	358	317	249	217	4388	100.000
1852* . .	187	283	244	288	302	616	751	724	436	395	353	302	4881	110.000
1853 . .	305	268	304	292	254	317	386	460	439	354	270	240	3889	117.000
1854* . .	225	226	254	380	458	988	1500	906	619	537	362	347	6802	127.000

* Cholera years.

† 49 killed by the explosion of steamboat Edna, at the mouth of the Missouri, excluded from this enumeration.

The daily reports of intermittents published in June, 1849, give a monthly total of 2,647

Those of July give a monthly total of 2,723

the years 1841 1854. Engelman.

st	September	October	November	December

Based on the results of the preceding table, is the following

Tabular Statement of the Monthly Ratio of Mortality in St. Louis for fourteen years, during five of which Cholera prevailed. The table showing the ratio of deaths to each thousand of population.

	Assumed population of mortuary limits.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly total per mille.
1841 . .	30.000	0.9	0.8	0.7	1.2	1.7	2.3	6.7	5.5	3.7	3.7	2.2	2.7	32.0
1842 . .	34.000	1.5	2.2	1.7	0.9	1.0	1.9	2.4	2.7	2.2	2.6	1.1	1.0	21.2
1843 . .	38.000	0.7	1.0	1.2	0.8	0.9	1.7	5.6	6.1	4.3	3.5	2.2	2.3	30.5
1844 . .	43.000	2.1	2.3	1.9	2.1	1.7	2.6	5.6	6.0	4.5	3.4	2.2	2.5	36.7
1845 . .	48.000	2.2	1.3	1.7	1.6	2.7	4.0	4.9	4.5	4.5	3.4	2.3	2.2	35.4
1846 . .	54.000	2.0	2.2	2.7	2.4	2.2	3.2	5.7	4.8	4.5	3.6	2.3	2.2	38.0
1847 . .	62.000	2.5	2.5	2.5	2.5	2.7	4.0	6.5	5.9	5.5	4.5	3.6	3.5	46.2
1848 . .	70.000	2.9	2.7	2.8	2.6	2.8	4.1	4.4	3.8	3.1	3.2	2.7	3.4	38.6
1849* . .	80.000	3.6	3.1	4.0	5.3	10.8	30.3	31.4	5.5	4.1	3.2	2.5	2.2	106.2
1850* . .	90.000	2.7	1.7	2.2	2.6	3.9	6.0	12.8	7.6	3.5	2.7	2.8	1.9	50.4
1851* . .	100.000	1.5	1.7	1.9	1.9	2.1	10.1	8.6	4.6	3.6	3.2	2.5	2.2	43.9
1852* . .	110.000	1.7	2.6	2.2	2.6	2.7	5.6	6.8	6.6	4.0	3.6	3.2	2.7	44.4
1853 . .	117.000	2.6	2.3	2.6	2.5	2.2	2.7	3.3	4.0	3.8	3.0	2.3	2.0	33.2
1854* . .	127.000	1.8	1.8	2.0	3.0	3.6	7.8	11.8	7.1	4.9	4.2	2.8	2.7	53.5

RECAPITULATORY.

Average Mortality in St. Louis, in classes.

	I. First 3 years of the series, 1841, 2, 3, without cholera occurring in them.	II. Six subsequent years without cholera, 1844, 5, 6, 7, 8, and 1853.	III. Nine years without cholera, 1841, 2, 3, 4, 5, 6, 7, 8, and 1853.	IV. Five cholera years, 1849, 50, 51, 52, 54.	V. Average of the 14 years taken together.	VI. The 9 years without cholera (III.), may be more simply, and probably quite correctly stated, thus—
January	1.0	2.4	1.9	2.3	2.0	2
February	1.3	2.2	1.9	2.2	2.0	2
March	1.2	2.4	2.0	2.5	2.1	2
April	1.0	2.3	1.9	3.1	2.3	2
May	1.2	2.4	2.0	4.6	2.9	2
June	2.0	3.4	3.0	12.0	6.3	3
July	4.9	5.1	5.0	14.3	8.3	5
August	4.8	4.8	4.8	6.3	5.3	5
September	3.4	4.3	4.0	4.0	4.0	4
October	3.3	3.5	3.5	3.4	3.4	3
November	1.8	2.6	2.3	2.8	2.5	2
December	2.0	2.6	2.4	2.3	2.4	2
Total per mille, per year	27.9	38.0	34.6	59.7	43.6	34

In the presumptive table (VI.), the mortality of the first months of the year has been slightly increased, and that of the last three considerably diminished. This, it is presumed, will correct the

* Cholera years.

error of the table III., produced by the continuous increase of population during each year. The mortality of the year would then be ordinarily (excluding cholera years) one in thirty, in cholera years one in seventeen, and in the entire 14 years one in twenty-three. It is probable that in ordinary years the mortality varies from one in twenty-six to one in thirty-six, or from 28 to 38 per mille. (The three years in the first column were the first of our registration system, and may be suspected to be inaccurate as to the returns registered, for which reason we have varied our calculations, so as both to include and exclude them.)

Numerical Table showing the Mortality by Cholera in St. Louis, for five years, with the Ratio of the Mortality per mille of population, according to the official reports of the City Register. ENGELMAN.

	MORTALITY.					RATIO PER MILLE.				
	1849.	1850.	1851.	1852.	1854.	1849.	1850.	1851.	1852.	1854.
January .	86	13	2	4	1	00.4	0.1	...	...	...
February .	21	4	...	3	2	0.3	...	...	...	...
March . .	78	2	1	1	10	1.0	...	...	...	...
April . .	126	12	9	2	90	1.6	0.1	0.1	...	0.7
May . .	554	80	47	44	190	7.9	0.9	0.5	0.4	1.6
June . .	1746*	174	505	230	479	21.8	1.9	5.0	2.1	3.8
July . .	1689*	458	233	274	533	21.1	5.1	2.3	2.5	4.2
August . .	45	59	37	98	136	0.6	0.7	0 4	0.9	1.1
September .	13	16	9	41	55	0.2	0.2	0.1	0.4	0.4
October . .	3	21	...	53	20	...	0.2	...	0.5	0.1
November .	3	39	2	31	4	...	0.4	...	0.3	...
December .	3	5	...	21	13	...	...	...	0.2	0.1
Total . .	4317	883†	845	802	1533	54.0	9.8	8.4	7.3	12.0

* Dr. McPheeters gives for June and July, 1849, each 1,799 and 1,895. (*St. Louis Med. Journal*, January, 1850.) The sum of the daily reports published at the time (*Daily Organ*, St. Louis, August 16, 1849), states these months at 1,820 and 1,917.

† Dr. McPheeters gives the total of this year 994, reporting for June, 196, and for July, 531. (*St. Louis Med. Journal*, January, 1851.)

Dr. McPheeters reports the total for 1849, at 4,555. (*St. Louis Med. Journal*, January 1850.) Dr. Reyburn (*St. Louis Union* and *St. Louis Probe*), reports it at 4,629.

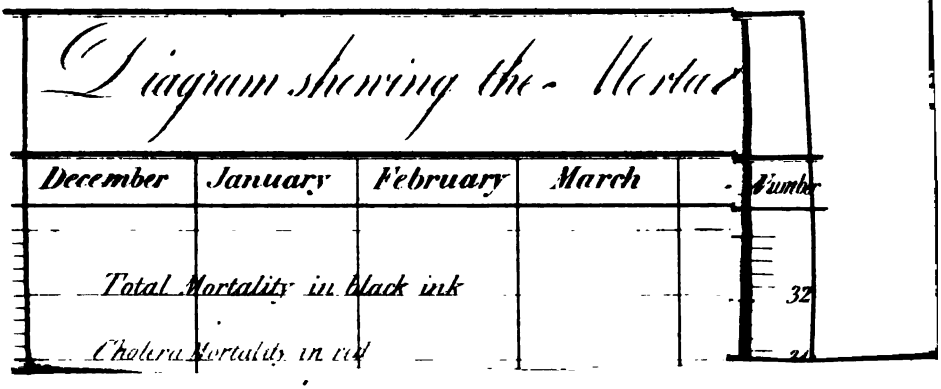


Diagram shewing the Mortal
December
January
February
March
Number
Total Mortality in black ink
32
Cholera Mortality in red

Comparative Ratio of Mortality by Cholera and by other Diseases in the five Cholera Years in St. Louis. ENGELMAN.

	1849.			1850.			1851.			1852.			1854.		
	By cholera.	By other diseases.	Total.	By cholera.	By other diseases.	Total.	By cholera.	By other diseases.	Total.	By cholera.	By other diseases.	Total.	By cholera.	By other diseases.	Total
January	0.4	3.2	3.6	0.1	2.6	2.7	...	1.5	1.5	...	1.7	1.7	...	1.8	1.8
February	0.3	2.8	3.1	...	1.7	1.7	...	1.7	1.7	...	2.6	2.6	...	1.8	1.8
March	1.0	3.0	4.0	...	2.2	2.2	...	1.9	1.9	...	2.2	2.2	...	2.0	2.0
April	1.6	3.7	5.3	0.1	2.5	2.6	0.1	1.8	1.9	...	2.6	2.6	0.7	2.3	3.0
May	7.9	2.9	10.8	0.9	3 0	3.9	0.5	1.6	2.1	0.4	2.3	2.7	1.6	2.0	3.6
June	21.8	8.5	30.3	1 9	4.1	6.0	5.0	5.1	10.1	2.1	3.5	5.6	3.8	4.0	7.8
July	21.1	10.6	31.7	5.1	7.7	12.8	2.3	6.3	8.6	2.5	4.3	6.8	4.2	7.6	11.8
August	0.6	4.9	5.5	0.7	6.9	7.6	0.4	4.2	4.6	0.9	5.7	6.6	1.1	6.0	7.1
September	0.2	3.9	4.1	0.2	3.3	3.5	0.1	3.5	3.6	0.4	3.6	4.0	0.4	4.5	4.9
October	...	3.2	3.2	0.2	2.5	2.7	...	3.2	3.2	0.5	3.1	3.6	0.1	4.1	4.2
November	...	2.5	2 5	0.4	2.4	2.8	...	2.5	2.5	0.3	2.9	3.2	...	2.8	2.8
December	...	2.2	2.2	...	1.9	1.9	...	2.2	2.2	0.2	2.5	2.7	0.1	2.5	2.6
Total	54.0	52.2	106.2	9.8	40.6	50.4	8.4	35.5	43.9	7.3	37.1	44.4	12 0	41.5	53.5

The ratio above is per mille population.

FOREIGN IMMIGRATION.—As this influence has been referred to frequently in our report, and to show its relationship to the annual increase of population, we give the following, the only statistical data of immigration we have been able to obtain. These data are but partial returns of the annual immigration, as a large amount of population was in every year added to the city, which was not enumerated in the quarantine or other official documents.

Returns of Immigrants arriving at Quarantine Grounds, St. Louis, from July 5, 1851, *to December* 31, 1854.

	1851.	1852.	1853.	1854.
January . . .	No report	1189	1570	...
February . . .	"	1461	595	2718
March	"	2501	1530	2280
April	"	2155	1881	1768
May	"	2704	2382	3772
June	"	3032	2498	3237
July	411	1086	383	896
August	253	167	150	322
September . . .	38	173	25	85
October . . .	215	635	370	597
November . . .	2125	3075	2084	2678
December . . .	1315	2335	1577	1715
	4357	20,463	15,045	20,068

In January, 1854, and in two or three weeks in January, 1853 and 1852, the river was closed by ice; many immigrants then came up to the city by land. The number above reported falls short of the true amount, as infants were not enumerated, and frequently the boats reported false returns, to evade prosecution for carrying a greater number than allowed by law.

In 1852, about one-fourth were Irish, the remainder Germans; in 1853, very few Irish, but over 500 Mormons, mostly English. In 1854, the Mormon immigration increased to over 2,000; the Irish immigration ceased completely. In 1850 and '51, the Germans and Irish made each nearly one-half of the immigration. *Authority*, Leavenworth, M. D.

Statistics of German Immigration to the Port of St. Louis, from March, 1854, *to May,* 1855. (From Records of the German Immigrant Society.)

Months.	Via New Orleans.	Via Eastern Routes.	Total.
March, April, May . . .	7751	2560	10311
June, July August . . .	2205	2300	4505
September, October, November	4535	2800	7335
December, January, February	2785	1900	4685
	17,276	9560	26,836

Immigration during seven years.	*German, per above authority.*
1848 to 1849	9,000
1849 to 1850	14,403
1850 to 1851	10,715
1851 to 1852	14,624
1852 to 1853	20,088
1853 to 1854	18,535
1854 to 1855	26,836
Total . . .	114,201

About one-third of the number landed at quarantine reported their permanent destination to be St. Louis. About one-fifth of the German immigration were destined for St. Louis. No doubt a much larger proportion ultimately settled in the city.

(The numerical statements in the report on the diseases of St. Louis, will be found to differ in some respects from those on the same subject published in different years in the *St. Louis Medical and Surgical Journal.* The writer in the Journal has taken his data from the manuscript registration of interments in the City Register's office. We have taken ours from the same source, but have been careful to compare the manuscript registry with the

'sexton's weekly returns" of interments, from which the official registry is transcribed. By doing this we have in some instances been able to detect inaccuracies in the transcript, and thereby avoided them in our paper. The calculations in the registry we found to be frequently inaccurate, so we have depended exclusively on our own enumerations of interments, to the exclusion of the City Register. The weekly reports of interments in the cemeteries around St. Louis are published every Tuesday by the Register, and as Sunday, the closing day of each weekly report, is not always the last day of a month, weeks that are the intercurrent of two months must represent portions of the mortality of each month. In estimating a monthly mortality from weekly tables, the mortality of a week intercurrent of two months should be divided according to the number of the days of each month; that is, where a weekly report includes the mortality of the final days of one month, and the first days of the month succeeding, the sum of the weekly report must be divided according to the number of days of each respective month contained in the weekly report. Thus: a weekly report terminating July 4, must have its sum of mortality divided in such a way as to give three-sevenths to the month of June, and four-sevenths to the month of July. This is, at best, but an approximation to the correct result, but it is more accurate than to include the sum of five weeks in a month, which must be the case if the plan we propose is not adopted; and it changes materially the estimates of monthly mortality where the weekly mortality is great. The reported daily mortality by cholera, cholera infantum, diarrhœa and dysentery, in the report on the year 1854, represents the actual mortality, and not the interments of each day. We obtained these reports from the sextons' returns, which contain the date of the deaths.—R.)

REPORT OF THE COMMITTEE

ON THE

HYGROMETRICAL

STATE OF THE ATMOSPHERE

IN

VARIOUS LOCALITIES, AND ITS INFLUENCE ON HEALTH.

"THE conformation and position of the New World give to it a hot and watery climate; this impresses its own character on all the organized creation. Man himself, the one being preëminently free, is liable to its influence, in proportion as he neglects the exertion of those superior faculties wherewith he is endowed for the conquest and subjugation of that nature which was intended, not to govern, but to serve him."

ARNOLD GUYOT.

THE

REPORT OF THE COMMITTEE

ON THE

HYGROMETRICAL STATE

OF THE

ATMOSPHERE IN VARIOUS LOCALITIES, AND ITS INFLUENCE ON HEALTH.

BY SANFORD B. HUNT, M.D.,

BUFFALO, NEW YORK.

YOUR Committee, in undertaking the task assigned him, conceives himself fortunate in a subject yet fresh, and possessing intrinsic interest and importance. Immediately on receiving notice of his appointment, he applied himself to the meteorological observations necessary to the illustration of the relations of humidity and disease. Becoming deeply interested in his subject, he was not discouraged to find it difficult and complex. It is no trivial task to isolate a single atmospherical condition, and assign to it its relative value among other conditions, with which it forms a series of causes mutually reacting upon each other. Aside from this, the literature of meteorology is scattered and imperfect. Even the formulæ for ascertaining the most essential conditions are yet unsettled, and various methods are adopted by different observers. Again, it is conceded that one of the more important principles, the force of vapor at low temperatures, requires a careful revision under competent hands. The science is fragmentary. A few philosophical minds have studied its problems, but no comprehensive and practical work as yet exists upon this subject, so nearly allied to the etiology of disease, and, consequently, to the nearest interests of medical science.

Among those to whom I have been most indebted for encouragement and assistance in my labors, I take, thus early, the opportu-

nity to mention Professor Edward H. Barton, of New Orleans, a gentleman distinguished by his long continued attention to this specialty, and deserving, from his unwearied industry and talent in associating it with the phenomena of epidemics, to be considered as the leading mind in the country, so far as this branch of etiology is concerned.

Closely associated with him in scientific worth, as well as in the assistance kindly rendered to myself, is Mr. Lorin Blodget, late of the Smithsonian Institution. While Dr. Barton has studied climate with an almost entire devotion to the interests of medical science and sanitary reform, Mr. Blodget has taken that wider range of investigation which involves the whole philosophy of meteoric phenomena. The results he has obtained are mostly entombed in the archives of the Smithsonian Institution, with but little prospect of ever becoming useful to science; but enough has been afforded us to show what might have been done under more favorable circumstances.

I have said that the literature of meteorology, in its relations to disease, was fragmentary. Among the earliest to recognize—not by experiment, but by *a priori* reasoning—the importance of aqueous vapor as a cause of disease, was Professor Charles A. Lee, who, so long ago as the publication of *Forry on Climate*, addressed a letter to its author, asserting distinctly the influence of a high dew-point in the causation of disease.* The subject has never, however, received much consideration at the hands of the profession. In 1851, Professor Barton, then, as now, President of the Louisiana State Medical Society, published his address to that society, which was one of the earliest strictly medical papers upon the condition in question. In the fall of 1853, Mr. Blodget furnished to a medical periodical (the *N. Y. Journal of Medicine*), a most interesting paper on the combination of high heat and humidity. During the past year, Professor Barton furnished to the city of New Orleans his elaborate report on the causation of yellow fever, as chairman of the Sanitary Commission appointed for that purpose. This report, from the novelty of its doctrines, the earnestness with which they were urged, and the vast array of facts brought to support them, has deservedly added much to the reputation of its author.

Some recognition of the importance of a high dew-point seems

* See Forry on Climate, p. 111.

to have reached every mind devoted to the philosophical study of etiology. The doctrines of the miasmatists, so forcibly set forth by Dr. Caldwell, in a prize essay, many years ago, embody the same thought. Heat and moisture, with the addendum of vegetable decomposition, were the essential features of malaria. Drake, in his great work on the *Diseases of the Interior Valley*, has a more distinct recognition of a high dew-point as an active agency in the production of disease, and speaks with some degree of confidence of the necessity of a "dew-point above 60°" in some forms of zymosis.

Dr. La Roche, in his classical work on *Pneumonia and Malaria*, alludes to the views of Dr. Lee, before mentioned, in such a manner as to convey the idea that Dr. L. looked upon a high dew-point as the sole and essential condition in the production of zymotic disease, without reference to any association with other causes. A careful perusal of Dr. Lee's letter must convince every one that he does not assume that untenable position, which belongs only to Mr. T. Hopkins, of Manchester, England, who asserts the identity of malaria and humidity. Dr. La Roche, in his earnest assertion of the morbific tendency of a "paludal atmosphere," seems to forget that the very phrase employed concedes the question, and that the same arguments which he wages against humidity, viz: inconstancy of injurious results, must apply with equal force to his own theory.

Inasmuch as a large proportion of the medical mind is not familiar with the laws of humidity, it is, perhaps, proper that an outline should be given here.

In the first place, it should be remembered that this is the only *variable* constituent of the atmosphere—whether upon the summits of mountains or on the level of the sea, the relative proportions of oxygen, nitrogen, carbonic acid, and ammonia, remain the same. Only to humidity is conceded a wide range of quantity, varying with sources of supply, with temperature, with barometric pressure, and with the degree of ventilation. The same cubic foot of vapor which at zero can only contain 0.856 of a grain, can, and sometimes does, at 95° contain 17.009 grains of moisture. In all calculations of the humidity of the atmosphere, the dew-point is the essential condition, as it indicates the point to which the atmosphere is saturated with moisture (condition of maximum density), all between that and the temperature being thus a margin for further absorption of vapor.

For ascertaining the dew-point various means have been devised. Of these, the most convenient is Mason's Hygrometer, which is constructed on the principle of a constant relation between the temperature of the air, that of evaporation, and that of the dew-point. This relation has been reached with sufficient accuracy to be expressed in mathematical formulæ. Evaporation accelerates with increasing dryness of the air. If the atmosphere be saturated, of course no evaporation can take place, but all degrees of dryness existing will correspondingly lower the temperature of a wet-bulb thermometer, below one with a dry bulb. Mason's Hygrometer affords, at a glance, the temperature of the air, and that of evaporation. From these two conditions the dew-point may be reached by various formulæ. The tables given in this report have been laboriously calculated after Regnault's formula, by Dr. William Van Pelt, of Williamsville, Erie Co., and compared with the results obtained by the formula in use by Dr. Barton. This latter is a very neat and accurate method, and is as follows: The difference between the temperature of the air (t), and that of evaporation (t'), is multiplied by 105; the product is divided by t', and the quotient deducted from t. This compares very closely with Regnault's formula. Another rapid and easy method is to deduct the difference, $+\frac{1}{3}$, $+\frac{1}{8}$, from the temperature of the dry bulb.

The dew-point being thus reached, the relative humidity is obtained by dividing the actual amount of moisture by the possible amount, thus giving the fraction of saturation. It expresses the following proportion: As the possible weight of vapor is to the actual weight, so is 1,000 to the fraction of saturation. This is called *relative* humidity in contradistinction to the *actual* weight of vapor or humidity.

Aside from those general climatic causes which are constantly varying the humidity of the air, and which will be briefly considered in the course of this paper, there are other and local causes and habitudes of humidity, which must be examined before a clear view of its relations to disease can be reached.

The first of these is *altitude*. Experiments have been made which prove a constant difference in the humidity of different altitudes. I have not at hand any others than those made by myself. As an illustration of this difference, I give the following results, obtained this day, by two observations, at intervals of a few minutes, one of them near the surface, and the other in the belfrey of a church, at

an altitude of sixty feet, at 11 A. M., under a clear sky, with a light southerly breeze:—

	Temperature of air.	Temp. of evaporation.	Dew-point.	Relative humidity.
At the surface . .	49°	43°	34.4°	.616
On the tower . .	46	38	23.9	.487

The same observation has been made many times, with the invariable result of a lessening humidity with an increasing altitude.

With the view of more thoroughly testing this question, I established, a year since, a series of comparative observations at two stations in this city, varying in altitude about forty-five feet. Of the upper of these stations I took charge; the experiments at the lower were conducted by Mr. Wesley D. Allen, of this city, the instruments used having been previously compared. During the month of June, 1854, the following average results were obtained, at 2 P. M.:—

	Height above Lake Erie.	Temperature.	Dew-point.	Relative humidity.
Upper station	65 ft.	71.57°	62.57°	.737
Lower station	20	70.53	61.87	.768
Differences	45	1.04	.70	.031 more.

These differences, though at first glance trivial, are sufficient to show that even at 2 P. M., the dew-point is proportionably, and the relative humidity actually higher at the lower station. Now as this is the hour of all the twenty-four, when vapor is most equally divided between the upper and the lower regions of air, it becomes evident that during the evening, night, and morning, a much more decided result must have obtained. Under the influence of the solar rays there is, during the early part of the day, an upward movement of aqueous vapors, which reaches its maximum at 2 P. M., when a gradual condensation and descent commences. This fact is illustrated by the visible fog which settles at evening over ill-ventilated valleys, to be dispersed again by the morning sun.

Another and very important cause of variation in the dew-point is *ventilation*. So marked is this, that a deductive correction is required to be made in a dew-point obtained under a strong breeze. Motion of the air, whether by the pressure involved in it, or by the evaporation, and consequent decrease of temperature it occasions, rapidly lowers the dew-point. Suppose a given surface of water to be undergoing the process of evaporation, the column of air resting upon it, if motionless, will continue to absorb moisture till saturated. If a brisk breeze is blowing, however, a succession of

columns are momentarily passing over it, each absorbing but a small modicum: we shall have, consequently, a lower dew-point.

Among other local causes should be included standing water, which, in a still, sultry day, might occasion a high local dew-point. Under this head should, also, come all damp and ill-ventilated places. A damp cellar, or the hold of a ship, even in winter, if heated by artificial means, affords a high condition of maximum density.

Having thus briefly sketched the local habitudes of humidity, it will also be profitable to review, in a cursory manner, the relative humidity of different regions of the United States, with a view to examining the general relations of climate and disease—a point too broad for thorough discussion here, but too important to be altogether omitted. Each region has its own climatic conditions, and, more especially, its own humidity, as compared with others. If, having stated these, we find a general law of relation established between them and the locality of special diseases, a step will be gained, from whence we may, more minutely, examine a single epidemic season.

No part of the United States lies within the direct influence of the trade-winds. Our climate is, therefore, much drier than that of Central or South America, the whole eastern slope of which, from the Atlantic to the Andes, is bathed in the moisture of that great distributor of rains. The "return trade-wind," however, the prevalent southwest wind of the Atlantic slope of North America, reaching the surface of the earth at about 23° N. latitude, bears with it the larger share of that moisture, which, as the "trade-wind," it had accumulated in its immense sweep over the oceanic basin, elevated to upper air in equatorial latitudes, and then borne with it on its return to the polar regions, as the normal southwest wind. It is this wind that is the great source of North American rains, and which gives to our climate its comparatively humid character.

There are few disturbing causes in the surface elevation of the United States, to interfere with the equable distribution of the moisture of the return trade-winds. The Appalachian chain of mountains is in the same line with the atmospheric current. It divides the stream of moist air, but does not intercept its course, the slope of either side receiving its share. Whenever deflected from its usual course, or in any manner elevated to the mountain peaks of this range, it is by contact with a colder air, precipitated in rain, so that this chain forms a great reservoir of fresh water for the

States lying east and west of it. Farther to the west, no sufficient elevation occurs to materially decrease the humidity of the atmosphere, by precipitating it in rain, until we reach the Rocky Mountains. But long before we have attained this far western longitude, we have passed beyond the western verge of the southwest wind, and a dry and arid district has intervened. Immense prairies, without wooded vegetation, growing drier and more sterile as we pass to the west; rivers of immense length, but few tributaries, depending on their mountain source for all their water, are the characteristics of this continental climate, so closely resembling that of Middle Asia and Central Africa.

Recollecting that none of the moisture of the *direct* trade-wind passes over the great central chain of mountains, and that these mountains approach very nearly to the western coast of the Gulf of Mexico, it will be seen that the extreme westerly point of the southwest wind—its starting-point, so far as the surface of the earth is concerned—must be a little to the west of the mouth of the Rio Grande, and that from thence it passes northeasterly, until it crosses the Mississippi, as high up as the Falls of St. Anthony. A line drawn from one to the other of these points, may be regarded as the normal western boundary of the moist winds, liable, however, to those mysterious periodic oscillations, whose effect extends so far as to make the occurrence of a wet season in America the almost certain index of a dry one in Europe, and *vice versa.*

It is evident, then, that as we must look to the southwest wind as the great source of humidity, we should expect to find that climatic condition in its greatest intensity where the wind first reaches the land, and before it is deprived of its aqueous vapor, by long travel over the surface of the country, and the consequent precipitating causes. These causes are twofold, altitude, and polar breezes.

Altitude.—On the eastern slope of the Alleghanies, the climate is essentially maritime. Large gulfs set back into the land, and no great elevations occur. Consequently the southwest wind is nowhere interrupted, except by the oscillation of the land and sea breezes, and the occasional irruption of a polar wind.

The same conditions obtain on the western slope. Even at St. Louis, we have only attained to a level of five hundred feet above the sea. The flat surface of the prairies of Illinois and Indiana opens a gateway for the transmission of the normal wind on its northward route. The last spurs of the Alleghanies sinking to the level of Lake Erie, just at the western boundary of New York, in-

terpose a water-shed, where, only four or five miles from the lake, we have streams running to pour their waters into the Gulf of Mexico. The southwest wind, impinging against the western side of the Alleghanies, is deflected, till it becomes, at frequent intervals, a south wind.

Thus we have two climates established; the same in kind, but varying in degree; having their dividing line at the point indicated. Of these, the eastern portion, constituting a large part of Central Pennsylvania and Western New York, is shut off from that portion of the moisture of the southwest wind, which is lost in passing over the mountain range. This district is not wanting in rains, though its relative humidity is low; and constitutes, in reality, but a part of a long and narrow slip of land, occupying the upper plateau of the eastern side of the Alleghanies, extending their entire length, and which, though possessing a dry atmosphere, is liberally supplied with rains, from the condensation of vapor on the peaks above it. Its temperature is, however, lower than that on the western slope, and its vegetation that peculiar to a less humid climate.

But when we pass to the westward, we reach at once a softer climate, not dependent upon latitude, for we find the peninsulas of Michigan and Upper Canada sharing in this mild air, and having a higher temperature by far than those parts of New York upon the same latitude. The whole interior valley, then, presents the anomaly of a country, far inland, possessing a maritime climate.

Polar Breezes.—The Atlantic basin is the great channel of these winds, but the northward slope of the continent is so continuous that it offers scarcely more obstacles to them, than does the ocean itself. From the chain of lakes northward to the Frozen Ocean stretches a vast, monotonous, low-lying plain, over which the north wind courses without hindrance. Deflected to the northwest, by impinging against the Rocky Mountains, and still further thrown to the westward, when it meets the southern breezes, midway the continent, it is the probable cause of those great storms, with rain, which occur along the line of this junction.

All that portion east of the Alleghanies, is measurably protected from the north wind by the easterly direction of that range. This is true of the whole Atlantic coast, with the exception of the New England States and New York. The southern portion of New York is, however, similarly protected by the Catskills, and has, consequently, a milder and more humid winter climate.

From this hasty sketch, we are enabled to fix upon the geographical outlines of humidity. Disease has also its boundaries, and a comparison may be made.

Humidity will be found at low altitudes open to southwest winds.

The relative humidity of the atmosphere will decrease with the increasing altitude of the place examined, with its protection from the southwest wind, and with its exposure to polar breezes.

These are the great conditions which apply equally to all parts of our country. Disturbing local causes will vary, while they confirm the exactness of the rule.

Which are the sections of our country which possess the condition of humidity in excess by these data, or are, at any rate, liable to occasional periods of high saturation?

The eastern parts of Texas, Arkansas, Missouri, and a small part of Iowa; all of the Mississippi Valley east of these States, and west of the plateau of the Alleghanies; the Gulf States, and the Atlantic States, as far north as New Jersey, and as far west as the navigable waters set back from the sea. Or, to sum up the statement, everywhere upon our great internal rivers and lakes, decreasing as we go northward, owing to the gradual expenditure of the humidity primarily absorbed, and the intensity of which has been expended upon the Gulf States.

The map which would show the boundaries of those regions naturally warm and humid, would, also, circumscribe the fever districts, the favorite haunts of zymotic disease in this country, while every considerable elevation would mark a spot, dry in its atmosphere, and healthy in its climate. The western parts of Texas, Kansas, and Nebraska—all the vast plain extending toward the Rocky Mountains, though low in altitude, is beyond the western border of the return trade-wind, beyond the causes of humidity, and remarkably exempt from zymotic disease. The geographical knowledge of every man will serve to carry out this relation.

Indeed, when we glance at the forms of vegetation belonging to these different conditions, we shall not wonder if that influence which is able so to work upon vegetable, must, also, be exerted upon animal life. The reader who is familiar with the philosophic mind of Arnold Guyot (to which he must already have recognized my indebtedness), will pardon the introduction of an extract from his brilliant comparison of the dry and humid climates.

"The warm and the moist—these are the most favorable condi-

tions for the production of an exuberant vegetation. Now, the vegetable covering is nowhere so general, the vegetation so predominant, as in the two Americas. Behold, under the same parallel, where Africa presents only parched table lands, those boundless virgin forests of the basin of the Amazon, those selvas, almost unbroken, over a length of more than 1,500 miles, forming the most gigantic wilderness of this kind that exists in any continent. And what vigor, what luxuriance of vegetation!" * * *

"South America, and particularly the basin of the Amazon, is the true kingdom of the palm trees; nowhere does this noble form of vegetation show itself under a greater number of species. This is a sign of the preponderating development of leaves over every other part of the vegetable growth; of that expansion of foliage, of that leafiness peculiar to warm and moist climates. America has no plants with slender, shrunken leaves, like those of Africa and New Holland. The ericas, or heather, so common, so varied, so characteristic of the flora of the Cape of Good Hope, is a form unknown to the New World. There is nothing resembling those metrosideri of Africa, those dry myrtles (eucalyptus), and willow-leaved acacias, whose flowers shine with the liveliest colors, but their narrow foliage, turned edgewise to the vertical sun, casts no shadow—everywhere, long and abundant leaves, an intense verdure, a strong and well-nurtured vegetation, these are what we find in tropical America."

"North America, in spite of its more continental climate, shares no less in this character of the New World. The beauty and extent of the vast forests that cover its soil, the variety of the arborescent species composing them, the strong and lofty stature of the trees growing there, all these are too well known for me to stop to describe them." * * * * * * * *

"But what becomes of the animal in the peculiar kingdom of vegetation? Blessings are divided; all treasures belong not to one country alone. This luxuriant vegetation, it might be said, seems to stifle the higher life in the animal world. Animal life is, as it were, overruled, enfeebled; it does not occupy here the first rank, which is its due; for it is dry heat, the continental element, that favors it."

"From one end to the other of the animal scale, the families that seem to give to these countries their character, by the number of their species, and by their relative abundance, are those connecting

themselves by their mode of life, with the aqueous, or with the vegetative element."

These laws of antagonism between vegetable and animal life, thus forcibly presented in the extracts just quoted, are, in themselves, an argument of the highest importance in this discussion. It is impossible that that element which so modifies and governs vegetation, should not also exert its influence upon animal life. And is it not rational to suppose that our diseases, which are but modifications of our life, should share in this influence?

It is not within the scope of this paper to discuss these questions upon general laws. The rules, and the great natural phenomena, are stated as a part of the subject, preliminary, and necessary to an inquiry into the minutiæ of the relations of health and humidity. These details should be such as may be easily reconciled to the law governing the larger phenomena.

Does a deficiency or excess of humidity produce a direct effect upon the health of the individual?

It is not probable that a mere deficiency exerts any direct, or, at least, immediate effect. At 11° below zero (F.), the amount of vapor is almost nothing, and even at zero, it equals only 0.856 of a grain to a cubic foot of vapor, while at the very common dew-point of 50° F., a cubic foot of atmosphere contains four and a half grains. It is evident that these wide differences are consistent, nay, necessary to the health of the individual. In regard to deficiency, as well as excess, it is the *fraction* of saturation which is the essential condition. Thus persons ascending mountains suffer much from thirst, great dryness of the mucous membranes, and general deficiency of action of the excretory organs. A comparison has been made of the quantity of moisture exhaled at each respiration at the level of the sea, and at the summit of Mont Blanc. At the sea level, a person making twelve inspirations per minute, of twenty-five cubic inches each, would exhale in twenty-four hours about eight cubic inches of water more than the amount inhaled. At 15,000 feet above the sea, he would, making eighteen respirations per minute (due to rarity), of twenty-five cubic inches each, lose eighteen cubic inches of water in twenty-four hours over the amount inhaled. This difference is due to the increased capacity of the air for moisture at those altitudes; in other words, to its absolute dryness.

A small actual weight of vapor in the air is not, then, sufficient to impair health, but a combination of small actual weight with

great capacity for absorption, as on a mountain, would render prolonged existence impossible, simply by its evaporating effect.

I am inclined also to think, though not prepared to maintain the position, that the mere fact of a high dew-point is not sufficient to cause disease, if the fraction of saturation be low, and a wide margin consequently left for evaporation.

The question now fairly arises: *Can an excess of humidity, that is, a high dew-point with a high fraction of saturation, of itself, and uncombined with other causes, act as a direct cause of disease?*

Every one is familiar with the effect of a warm sultry day, and need not be told that the symptoms produced are referable entirely to nervous exhaustion, and that we have little reason to suppose that zymosis has any share in their production. They are entirely analogous to the nervous depression produced by a warm bath, and would undoubtedly, if sufficiently prolonged, produce similar effects. In fact, we know that they do so in cases of prolonged exposure to sultry heats and severe exercise, as in the case of armies. In the battle of Brandywine, it was said that more died from heat than from the chances of war.

That epidemics as such, or special diseases, involving organic lesion, can depend upon high humidity *as an uncombined cause*, is very doubtful; unless we consider *coup de soleil* an exception. Many will recollect that cases of this sudden and fatal disease were so numerous in New York, in the summer of 1853, as to deserve the name of an epidemic. Dr. H. D. Swift has given an account of this period, assigning to the cases, or most of them, the title of "exhaustion from the effects of heat," a name far more appropriate than *coup de soleil*. During the summer of 1853, 260 deaths occurred under this latter designation. A large proportion of these were crowded into one week in August. Professor Blodget, in a valuable article on the "Climatic Conditions of the Summer of 1853," published in the *New York Journal of Medicine*, says that "the temperature of evaporation at New York, at the time of greatest mortality in August, was from 80° to 84°, being higher than the maximum temperature of evaporation at New Orleans at any time in 1852 by two degrees. At the latter place it reached 82° but once in that year" (1852). This implies, necessarily, a high fraction of saturation, and placing all the evidence together—the fact that the temperature at 2 P.M. was only 90° to 94° (not an unusual heat for the season), that the cases were mostly among foreigners, that Dr. Swift describes the symptoms as indicative of "nervous debility,"

and not of "cerebral congestion," that the dew-point reached a tropical maximum, and the conclusion is irresistible that, not dry heat, but a long-continued bath of aqueous vapor was the true cause of this unparalleled mortality. But, as if to make the evidence irrefragable, we are told that "eleven patients were attacked one morning in the laundry of one of our principal hotels;" and "several were brought to us from a sugar refinery, where, after working several hours in a close and over-heated apartment, they fell down suddenly in a state of insensibility." I regard these last mentioned facts as of the last importance. Here, in a laundry, or in a sugar-refinery, unaffected by solar rays, filled with vapor artificially produced, having an excessive humidity, unventilated (for on these fatal days there was no wind), men fall by dozens in sudden death. The experience of all time contradicts the idea that dry heat can produce these effects, and I regard them as conclusive upon the question, whether or no the combination of high heat and humidity is of itself a cause of disease. But it will nevertheless be borne in mind, that we are not authorized by them to ascribe zymotic disease, or the common epidemics of our country, to this condition alone. And this, I believe, is the position assumed by all intelligent meteorologists, and more especially by Dr. Barton, in his *Sanitary Report*, which has been strangely misinterpreted in this regard.

We must, therefore, so far as present evidence can decide the question, concede that humidity may act as a direct cause of certain diseases, marked by simple loss of tone, but deny that, uncombined, it is to be regarded as a cause of zymotic disease.

But it is, nevertheless, very certain that the combination of high heat and humidity is one of a series of causes, having a direct influence upon the prevalence and fatality of epidemics when once established. The *inception* is due to a special cause, of which we are ignorant; its *progress* depends largely upon the relative humidity of the air.

Dr. Barton has shown, in his part of the *New Orleans Sanitary Report*, that no epidemic of yellow fever has ever occurred in that city without the presence of two causes, which he personifies as the two blades of the shears. Of these, one is a *high dew-point;* the other, a mass of causes, grouped under the generic name, "*terrene causes.*" Either one, without the other, he represents as powerless; combined, they are the shears of fate.

After a careful consideration of Dr. Barton's argument, I am

more than ever impressed with its truth and importance. Heretofore, our notions of the causation of epidemics have been obscure and contradictory; the theory which seemed perfect one season, was worthless the next.

It has ever been a law of epidemics that they sought low-lying and filthy districts. I need not quote here the repeated results obtained by the Registrar-General of England, as to the comparative mortality of different altitudes in the London basin; the fact is as old as the earliest ideas of sanitary police. Hence filth has been assigned as the cause of disease in cities, while malaria is the name of the same thing in country districts. Of the latter too much has been said to render its discussion any longer interesting. But this we know, that while in some seasons the evidence of its existence and power in certain districts seems incontrovertible, in the very next year we may have the same terrene conditions, existing without results in the form of disease. The causes—the heat, the stagnant water, the decaying vegetation—all are there; the effect only is wanting. So widespread and common is this condition, that, even in high places in the medical profession, we now hear the connection of filth and disease denied and derided. They tell us, and truthfully, that New Orleans, and other "malarial" towns are always filthy; they were filthy in 1852 and healthy; in 1853, filthy and unhealthy. By this reasoning from a single condition, truthful in its premises, but presenting them only in part, the public confidence in the efficacy of sanitary police has been undermined, and the public mind was fast settling into a Turkish fatalism and apathy. The most common-sense principles of cleanliness seemed to be contradicted by stubborn facts. "Malarialism," even as supported and explained by Dr. La Roche, had no hold upon the medical mind, for its phenomena were too contradictory to base a belief upon.

It was at this juncture that Dr. Barton declared that no epidemic of yellow fever had ever occurred in New Orleans when the city was cleanly; that every epidemic had been accompanied by some upheaval of the soil, and that, whether dirty or cleanly, no epidemic had ever occurred without the presence of a high dew-point. So far as the sanitary history of New Orleans was known, for a long series of years, the two conditions, high dew-point and filth, had gone together in every epidemic of whatever kind.

This position is sustained by a crowd of witnesses, and thus far no contradictory evidence has been adduced. With a curious mis-

conception of the true issue, one writer has announced that such a city, though dirty, was healthy; another, that his locality had a remarkably high dew-point, without epidemic disease; but no one has yet proven that the two causes, meteoric and terrene, have existed together without an increase in the mortality of the location.

All the numerous contradictions in the laws of epidemic progress seem harmonized by this theory. So far as evidence extends, we may, by it, account for either the partial or entire exemption of a city from cholera, while evidently under the epidemic influence, for the escape of the higher and cleanlier portions, for its occasional irruptions into rural districts, and, particularly, for its sudden departures from any given point.

To return from this hasty indorsement of a doctrine not yet sufficiently proved in the present paper.

It will be expected that, if this theory be correct, there should exist a certain and definite relation between the progress of an epidemic and the condition of humidity during its prevalence. We will start with the proposition that the epidemic tendency, cholera, for instance, exists *per se*, that this *tendency* may exist without reference to known atmospheric conditions, but that its development into an actual epidemic must depend on the condition of humidity, combined with the acknowledged terrene causes. *Will this relation assume the form of a direct and mathematical ratio between the alleged causes and the effect?*

Not necessarily. The proportion of those liable to be acted upon by the causes, is not always alike; it may vary from week to week. He who by prudence escapes this week, by imprudence may fall the next. Sanitary police may interfere. In Buffalo, during the summer of 1854, a large mortality occurred for a day or two in a locality particularly damp and filthy, under a moderate dew-point. The next day the whole population of the locality were expelled by the destruction of their shanties by the Board of Health, and, though the dew-point was higher, the mortality was less. Such, and an hundred kindred cases, would lead us to expect that but a dim and imperfect proportion would be observed between the dew-point and the epidemic.

This consideration has, however, less force, when we recollect that every community has its proportion of persons liable by their habits or constitutions to become the first victims of an epidemic. This would give a certainty to the early part of the season, and maintain it until this original stock of *pre-ordained victims* was

exhausted. The law, as deduced from these views, then, should be, that from the inception to the acme of an epidemic, the variations should be in harmony with those of the hygrometer, but that during its decline, irregularities should appear, the variations being inconsistent, and only the mean of the whole period of decline should maintain the agreement of the epidemic and the hygrometer.

With a view of testing this law, I have been at much pains to present the following

Statement of the Climatic Conditions of the Summer of 1854, *at Buffalo, N. Y.; giving the temperature, dew-point, and humidity of each week, during the months of June, July, August, and September; together with the number of cases of cholera, and of deaths from cholera, cholera infantum, cholera morbus, diarrhœa, and dysentery, in each week.*

PERIODS OF ONE WEEK.	CLIMATIC CONDITIONS.			CHOLERA.						
	Temperature.	Dew-point.	Relative Humidity.	No. of cases.	Were fatal.	Deaths. Cholera infantum.	Deaths. Cholera morbus.	Deaths from diarrhœa.	Deaths from dysentery.	Total of disease.
June, 1st week.	70.8	59.6	.724	1	1	1	...	1	1	4
" 2d "	67.1	61.3	.836	...	...	...	...	2	...	2
" 3d "	74.1	63.9	.735	3	1	...	...	...	1	4
" 4th "	73.	63.9	.735	11	4	...	1	2	5	19
July, 5th "	77.4	67.6	.751	21	17	2	1	...	...	24
" 6th "	78.	66.6	.756	47	22	...	...	5	1	53
" 7th "	80.4	69.6	.733	74	42	4	...	8	...	86
" 8th "	82.7	73.4	.754	189	86	15	4	6	6	218
" 9th "	77.7	66.3	.743	175	78	21	7	10	3	216
Aug. 10th "	73.4	61.4	.679	124	79	16	3	9	2	154
" 11th "	77.3	69.2	.809	101	44	11	1	8	9	130
" 12th "	75.4	66.1	.762	60	43	11	1	11	10	84
" 13th "	77.7	67.4	.743	55	41	14	7	8	7	91
Sept. 14th "	82.3	74.8	.811	55	30	25	1	12	6	99
" 15th "	70.3	61.3	.807	54	34	13	...	8	2	77
" 16th "	67.6	62.1	.819	44	28	7	...	6	11	68
" 17th "	69.6	61.3	.726	11	9	8	...	2	5	26
3 days.	65.	56.6	.708	1	...	1	...	1	1	4
17 weeks and 3 days.	74.1	65.1	.757	1,026	559	139	26	99	70	1359

The observations from which this table is constructed were made at 2 P.M., by myself. The dew-point and relative humidity were reached by Regnault's formula, in which the height of the barometer forms an element, by my friend Dr. Wm. Van Pelt, of this county. The record of mortality was obtained from the books of the Board of Health, and is believed to be strictly accurate.

It appears at a glance that the element of heat is not the essential one in the chain of causation. The relation between humidity

and disease is very close during the rise and acme of the epidemic. It will be noticed that the first marked decline in the number of cholera cases was on the tenth week, and that the average dew-point of that period was 61.4°. This tendency to decline was maintained in spite of a continuous high dew-point. The epidemic influence was subsiding; the number of foreordained victims was diminished, and the relation becomes confused. One fact towards the close of the epidemic deserves mention. On the fourteenth week, we find only fifty-five cases of cholera, with the tropical dew-point of 74.8°, while on the week succeeding, we have fifty-four cases, with the very moderate dew-point of 61.3.° We have but to mention that of the fifty-four cases of the fifteenth week, twenty-seven occurred on the first two days, and we see that so great a humidity did not fail to manifest itself in a corresponding number of deaths.

The most marked instances of the relation sought for occur in places where the previous habits of the population, and the whole sum of circumstances which make up their sanitary condition, have been such as to prepare the way for the attacks of this or any other disease.

I am able to give, from my own observation, two remarkable instances of this kind. On the 19th of July, I accompanied, by request, the Board of Health, of Buffalo, on a visit to the county poor-house, situated some six miles from the heart of the city, and on its extreme northern limit, in the midst of a farming district. Cholera had broken out among the inmates on the previous day, and during the preceding twenty-four hours fifteen deaths had occurred. It had, however, existed in a few cases, for some ten days previous. On the day of greatest mortality the dew-point was 77.2°. During the month of July, one hundred inmates were attacked, of whom fifty six died. During the epidemic season, about one-fifth of the population of the house perished. I have no disposition to renew the unpleasant contest in which my exposure of what I deemed to be the remediable causes of this terrible visitation involved me at the time. In justice to scientific truth, however, I may be allowed to quote from the *Sanitary Report* of James M. Newman, M. D., health physician of the city of Buffalo, his statement of the general fact. "Whatever," he says, "may be thought of the introduction of cholera from without, as the origin of the epidemic, or that it furnished the *exciting cause*, I have no hesitation in declaring that within the building itself, in its defective construction, and in the scanty and improper diet of the

pauper inmates, were to be found the *predisposing* causes of the disease, and a soil most fitly adapted for the reception and nourishment of the seeds of the disease to the development of the fullest harvest."

Here "one blade of the shears" had lain in idleness for months, until the tropical dew-points of 70°, 72.1°, 72.4°, 72°, and, finally, of 77.2°, on consecutive days, completed the weapon, and gave it terrible efficiency.

One further instance of a similar character must be mentioned.

On the 19th, the same day when cholera became so fatal at the Erie County Poor-house, it appeared in epidemic form at Suspension Bridge, near Niagara Falls. On the 22d, I was requested by the town authorities to visit the place. The mortality of this day, both in its number and in the rapid fatality of the cases attacked, was truly dreadful. During the day there were several showers, followed by a hot sun and still air, and the dew-point could not have been less than 80°. The effect of such a saturated atmosphere was peculiarly exhausting and enervating, even to the well, great fatigue being induced by very moderate exercise. This condition continued until the 26th. On the 25th, I made my third visit. The dew-point was 76.3°; new cases were occurring, and a strong tendency to death manifested. About midnight I noticed a marked change in the atmosphere; a strong easterly wind came up, no more attacks occurred, and a manifest tendency to convalescence was exhibited. On the 26th, the dew-point had dropped to 63°, and *from that hour the epidemic ceased.* I believe I am correct in saying that only one case occurred thereafter.

The meteoric cause is here evident. The terrene cause was found in the great excavations made for the railroads which centre at this bridge, and in the imprudent and filthy habits of the hundreds of laborers gathered together on the works.

I have thus completed what, in my view, was the task assigned me. To attain a full knowledge of the "influence of humidity on health in different localities," was for me impossible, beyond the narrow region of my own observation. In very few localities were such records kept of the two conditions—climate and disease—as would allow of careful induction.

The only reliable records, those of the Smithsonian Institution, were inaccessible. I could have quoted largely from the labors of Barton and Blodget, but they have gone before in this matter, and he who wishes to know if the results I have obtained will compare

with those reached by others, has but to refer to the published writings of these gentlemen. And I will repeat the remark made once before, viz: that after careful search I am unable to find any history of epidemic disease which militates with the broad and philosophic theory so ably advanced by these gentlemen.

Dr. Barton states the gist of this theory in the following words: and though he mentions only yellow fever expressly, he would doubtless include some other of the zymotic epidemics:—

"1st. That a close junction and combination of the meteorological and terrene conditions (referred to), is absolutely indispensable to the origination, transmission, and duration of yellow fever everywhere."

"2d. That all the terrene conditions referred to, are controllable and removable by human agency; and, consequently, are separable from the meteorological conditions, at man's option, and at man's pleasure."

"3d. That the atmospherical element can be much modified and ameliorated by man's influence."

"4th. That the irresistible corollary from the *probata* is, that yellow fever is an evil, remediable and extinguishable by human agency."

So far as the observations recorded in these papers extend, they have gone to confirm each of these *postulata*, with one exception, and that is an implied, rather than a distinctly stated, assertion, which will be discussed farther on.

It is proven that certain epidemic diseases are materially modified by *aerial* causes; that these causes alone are not sufficient for the actual production of true zymotic disease, or any other effect save nervous exhaustion; that, combined with the terrene conditions, they exert a direct, marked, and fatal influence upon epidemics, and that these causes are separable; the terrene condition being removable by the judicious exercise of a sanitary police, and the aerial causes being avoidable by hygienic measures, based upon a knowledge of the habitudes of aqueous vapor at ordinary temperatures.

So much I regard as proven. But one question yet remains. If I am not mistaken, Dr. Barton assumes that yellow fever, and certain other of the zymotic diseases, among them cholera, have no special poison, and that one disease, or another, is produced by the combination in different proportions of the two conditions, aerial and terrene. I am aware that many facts may be brought to sup-

port this theory. By many minds it would be considered as involved and admitted in the proposition that yellow fever cannot exist without such a combination.

The appearance of cholera in New Orleans immediately upon the disappearance of yellow fever, the known fact that a slight modification in the aerial condition is capable of determining whether influenza, pneumonia, or rheumatism, shall occur, and more than these analogies, the strong tendency to believe that that which we see and recognize as the active exciting cause, is the real and only one, constitute the principal arguments in favor of this hypothesis.

But as these combinations must have existed before cholera was known as an epidemic in this country, the fact that it and yellow fever will, after a certain period, decline, even though the combination remains to some degree, and the only occasional, but proven, occurrence of anomalous cases outside the influence of these conditions, are, to my mind, evidences of special cause.

It is enough that we may control and prevent the ravages of epidemics through these secondary causes, whose existence is known, and whose influences are governable.

But as the whole history of disease, its centurial transformations from one form of pestilence to another, its multiform aspects, and the dim vision we sometimes obtain of great and conservative purposes necessary to the maintenance of the race in these apparent scourges of the Almighty, lead, by a path somewhat uncertain, but seemingly the right, the careful and devout observer to recognize in plague and pestilence the evolution of a wisest plan, which through the cycles of the ages removes, by cutting off, the excrescences consequent on the thousands of years throughout which our race has existed.

SANFORD B. HUNT.

BUFFALO, 1855.

DEFORMITIES AFTER FRACTURES.

BY FRANK HASTINGS HAMILTON.

"THAT a 'cure' took place we do not doubt, but the information we should most desire would be on the length of the cured limb, and on a few other matters of that sort."

JOHNSON'S REPLY TO RADLEY.

PREFACE.

I PROPOSE to deduce from my own experience, and from the experience of other surgeons, as recorded in this report, the true prognosis of fractures. This I shall endeavor to do with care and fidelity, avoiding, on the one hand, if possible, the error of encouraging the practitioner with a prognosis too favorable, and, on the other, the equal wrong of leaving him to expect too little.

To this end, I shall draw from my hospital and private records such cases as have come under my immediate care, describing, as briefly as will be consistent with my purpose, all those circumstances connected with each fracture which might in any way modify the result, together with the plan of treatment, and finally, the precise amount and character of the imperfection, or maiming, if any, which remains. I shall not, however, confine myself to my own cases; but, so far as I am able, I shall record the cases which have been treated by other regularly qualified surgeons, and which have subsequently passed under my own observation. This is necessary not only as a vindication of my own practice and reputation, of which one must naturally feel jealous, but more especially that my conclusions may have, what you have a right to demand for them, the weight of authority.

I shall, therefore, ask the liberty of reporting the practice of my contemporaries, and of mentioning their names, that you may judge for yourselves whether they constitute proper representatives of the present condition of our art. Of this, I trust, no one will complain, since without such permission I would not have ventured upon the duty assigned me, nor do I believe any one else would have consented to have occupied my place.

It is certain that, up to this moment, no one has volunteered to state fully what have been the results in his own practice, or in the practice of the hospital, or other similar institutions, which have been under his immediate charge. In hospital records, you may find patients admitted with fractures, and reported as "dead," or as

dismissed "cured," with the occasional interpolation of "a good leg;" and, upon these records, tables have been constructed to determine the average fatality of such accidents, and the probabilities of cure; but I have not yet seen any published reports declaring what was the exact amount and value of the "cure"—how much the bone was shortened, or bent, or otherwise maimed and deformed. In short, they still fail to inform us what are the "deformities after fractures," which, under fair treatment, may reasonably be expected.

Dr. Wallace published, in 1839, a statistical account of the eighteen hundred fractures which had been treated in the Pennsylvania Hospital from its foundation up to the year 1838; and Dr. Norris published, soon after, a similar report of the fractures treated in the same institution between the years 1830 and 1839, inclusive; but neither of these gentlemen make any reference to a shortening, or to any degree of deformity which may have occurred in the cases reported as cured. Dr. Peirson, in his report of the statistical tables of all the fractures which had occurred in the Massachusetts General Hospital up to the year 1840, notices, under the head of "Remarks," many interesting facts, such as delayed or non-union, the occurrence of ulcers, gangrene, &c. &c.; but there is nothing exactly pertinent to the subject of our inquiry.

Dr. Lente, who has recorded the statistics of fractures treated at the New York Hospital for the twelve years preceding 1851, has attempted to supply the deficiency, which he declares does exist in the hospital records, upon this subject, by his own "personal experience of several years in the practice of the hospital, and by conversation with other surgeons who have been connected with it." But he has limited his statements to what he believes to have been the average results, as regards shortening, in the treatment of fractures of the femur.

The statistics furnished by Lonsdale, of the Middlesex Hospital of London, and by Fricke, of the General Hospital at Hamburg, are equally silent upon the subject of deformities or shortening.

The same disinclination to approach this subject is manifested by those who have written special or general treatises upon fractures, and who, with the single exception of Malgaigne, will be found either to have ignored prognosis altogether, or they have seemed to speak of it only casually, and without any numerical basis for their calculations, since, among writers of equal experience and reputation, there exist the widest discrepancies of opinion. An example

will illustrate what I have said. Chelius, writing of fractures of the thigh-bone, says: "Fracture of the thigh-bone is always a severe accident, as the broken bones are retained in proper contact with great difficulty. The cure takes place most commonly with deformity and shortening of the limb, especially in oblique fractures, and those which occur in the upper and lower third of the thigh-bone." To which Mr. South, the translator, and Surgeon to St. Thomas's Hospital, appends the following note: "In simple fractures of the thigh-bone, except with great obliquity, I have rarely found difficulty in retaining the broken ends in place, and in effecting the union without deformity, and with very little, and sometimes without any, shortening. For the contrary results the medical attendant is mostly to be blamed, as they are usually consequent on his own carelessness or ignorance." (*Chelius's Surgery*, by South, American edition, vol. i. p. 627.)

Even Malgaigne, to whose recent work, entitled, *Traité des Fractures et des Luxations*, I shall hereafter have frequent occasion to refer, and who speaks generally with a precision which indicates a careful observation of the facts, does not intimate the existence of any exact records, either in his own practice or in the practice of others, from which his conclusions have been deduced.

In looking for an explanation of this seeming indifference, or palpable ignorance, upon a subject of such manifest importance both to surgeons and to their patients, I find several probable causes.

I suppose that most practical surgeons have a tolerably correct appreciation of prognosis in fractures. I say tolerably, because I wish to imply a qualification. I do not think that a majority of even "practical" surgeons have a full appreciation of the subject. I am frank to confess that, until I commenced these investigations, I had not any just notions of the frequency of deformities after fractures. Nor can I now understand how any surgeon, who does not carefully measure limbs with a rule or with a graduated tape-line, can have possessed himself of any very accurate information upon that point. Yet I appeal to surgeons whether this has been their constant or even their general practice? or whether they have not usually adopted, in measuring the lower extremities, that more simple, yet always unreliable method of placing the limbs parallel, knee to knee and heel to heel? or whether they have not as often contented themselves with the averment of the patient himself, that the limb was perfect? and, indeed, whether, in case of a fractured

arm or radius and ulna, they have, in one case out of ten, instituted any sort of inquiry or examination by which their relative length might be determined?* I address hospital surgeons as well as surgeons in private practice. Let them answer to themselves these interrogatories. If such examinations can be shown to have occasionally been made, we still venture to affirm that, in no instance, for any considerable length of time, have regular records of exact results been kept. Nor do I expect that, upon my humble remonstrance, such records, fairly made, will hereafter be kept.

Surgeons who have the charge of public hospitals understand that the eyes of their pupils, their governors, their confrères, and of the public even are upon them, and it is attributing to them nothing more than a common frailty to charge that they dare not record faithfully their results in the treatment of fractures. To be honest in the admission of shortcomings in a branch of our art, where the difficulties are so little understood by those who constitute themselves our judges, would be suicidal. Do you not see that jealous and designing colleagues would have no such discreditable results? Pupils would draw unfavorable comparisons, and desert the wards where failures were so common; rival hospitals would secretly or openly seize upon such records to their own advantage; and the patients themselves would, no doubt, often return the diligence, skill, and honesty of their surgeons with imprecations and prosecutions.

There is, gentlemen, no lack of charity in these suppositions. We are to take men as they are, and as they are well enough known to be, and not as we would have them; and it is in vain to deny that such are the fair risks which strict honesty in this matter must incur. The instinct of self-preservation, therefore, prompts to silence, or to the most favorable representations. Students will continue to go out from our hospitals with a belief that perfect union of broken bones is the rule, and that exceptions imply generally unskilful management; and if, when hereafter they have themselves occasion to treat a fractured femur, the result falls short of their standard of perfect success, they, taught also by the same instinct of self-preservation which actuated their teachers, will conceal the truth from

* "Le malheur de tous ceux qui ont cru obtenir de ces guérisons miraculeuses, c'est qu'ils n'ont pas même songé à mésurer comparativement les deux membres; je dirai plus, c'est qu'ils ignorent le plus souvent les conditions d'une bonne et fidèle mensuration."—*Traité des Fractures et des Luxations*, par J. F. Malgaigne, tom. i. p. 724. A Paris, 1847.

others, and even from themselves, if possible. Nay, I fear that sometimes, under the same urgent promptings, and where the moral sense is not superior to all other considerations, they may hesitate to regard the sanctity of an oath! How else shall we explain the testimony of that man who, with uplifted hand, affirms that he has "seen and treated ten fractures of the femur, in adult persons, and not one of them is in any way shortened or deformed?" Or what less charitable construction will you place upon the published averment of a hospital surgeon in a neighboring province, who, in his remarks upon my "fracture tables," as reported by my late pupil, Dr. Boardman, some years ago, declares that he has lately treated at the hospital under his care one case of fractured inferior maxilla; three cases of broken clavicles, two of which were at the outer third; seven of fractured femur, one of which was compound and one comminuted; eight cases of fracture of the tibia and fibula, two of which were comminuted and one compound—in all nineteen cases, and that, with the exception of one who died, *every case resulted in a perfect cure?*

It is more than probable that the writer will not escape similar criticisms hereafter, and that his report may be regarded as giving a true representation of American surgery, but as scarcely applicable to the surgery of others. In reply to a sentiment so illiberal, I beg to say, in anticipation, that having myself visited a majority of the large hospitals of Great Britain, and very many upon the continent of Europe, and having observed carefully their methods of treatment, and, in some measure, noticed their success, I am prepared to affirm that, in so far as I have yet seen, the practice of American surgeons, in the management of fractures, compares favorably with that of any other people. The English themselves are constantly proclaiming their deficiency in this department of surgery. It is now more than one hundred years since Pott, then Surgeon to St. Bartholomew's Hospital, inquired of his brethren if it was not "notorious" that in England broken thighs and legs were "often, *very* often, left deformed, crooked, and shortened?" But, notwithstanding Pott believed that he had discovered the true cause of these deformities, and had devised a remedy which must in future secure to his countrymen comparative eminence in this branch, yet to-day Mr. Skey, the very distinguished successor of Mr. Pott in the same great hospital, finds occasion to say: "One is therefore at a loss to find any apology for those surgeons to whose want of care, and even of humanity, may be attributed *the numerous examples of*

distorted and contracted members, which have cast a reproach on the surgery of Great Britain." (*Skey's Operative Surgery*, American edition, p. 140.)

For myself, while I take these admissions as evidence that Americans are quite as expert in the dressing of broken bones as the English, I am nevertheless much more charitable to their failures than they are themselves. To me these admissions only confirm a long-nourished conviction that neither in Great Britain nor in the United States, nor in any other part of the world, has the art of treating fractures attained that degree of perfection which surgeons have almost universally claimed for it.

If my reviewers deny the correctness of my conclusions, I trust they will do me the justice to accompany their denial with proofs of the same specific character, and obtained in the same careful manner, with those evidences which I shall present.

Finally, no man can be more sensible than myself of the imperfect manner in which I have accomplished the duty which you have imposed upon me, and especially since, while I have only contributed a limited experience to the elucidation of a very important subject—the subject of Prognosis in Fractures—I have, to an extent still more limited, contributed suggestions or experience in relation to better or more successful modes of treatment. Yet I trust no one will, for that cause, censure an humble beginning. Others may yet complete what I have only commenced. "Admit that bones and patients are and always have been contumacious and refractory. What then? "What good," do you ask, "can be accomplished by exposing our failures, unless we have found the remedy, in which alone the world can claim a final interest?" I reply, that the first step towards improvement in any art or science must be the faithful exposure of its wants and deficiencies.

CHAPTER I.

OSSA NASI.

CASE 1. *Simple displacement of left os nasi, laterally and backwards. Partial restoration.*

S. L., of Auburn, aged 10 years. While playing, one of his mates accidentally hit him with his elbow upon the left side of his nose. I was immediately called, and found the lower end of the left os nasi displaced laterally and backwards, so that it rested under the lower end of the right os nasi. There did not appear to be any fracture beyond that which was inevitable by the mere separation of its serrated margins from the bones adjoining.

With a steel instrument, introduced into the left nostril, I attempted to lift the bone to its place. The membrane was very sensitive, and the patient very restless under my repeated efforts. I pressed upwards with considerable force, and succeeded at length in bringing the bone nearly into position. In this situation, with some slight deformity remaining, I was compelled to leave it.

The hemorrhage, which was for a time profuse, soon ceased spontaneously.

CASE 2. *Simple fracture or displacement of the ossa nasi. Permanent deformity.*

M. L. P. T., of Saratoga County, aged 5 years, was struck by a boy's sled on the left side, completely flattening his nose, and turning the bones across to the right. Dr. John Thompson, a distinguished surgeon of Saratoga County, was in attendance, and, as well as it was possible to do so, lifted and replaced the nasal bones. For some months it was supposed that the restoration was perfect, and not until all swelling had disappeared was it ascertained to be still considerably displaced.

Thirty-six years after the accident I examined the nose. I find the ossa nasi are inclined over to the right, the deviation being in a straight line, and commencing at their upper ends. It is, therefore, a displacement, rather than a fracture. The left nostril is very much

obstructed, and has been all his life a source of much inconvenience. Within a few years, also, a cartilaginous growth in the left nostril has materially increased the obstruction.

CASE 3. *Simple fracture and displacement of the lower third of the right os nasi. Restoration after one week.*

D., of Attica, aged 11 years. The lower third of the right os nasi was broken, and displaced to the right side. The accident occurred a week since, and an attempt was immediately made, by an intelligent country surgeon, to replace the bones, but without success. The doctor then directed him to call upon me.

I introduced a strong steel instrument into the right nostril, and pressed upward and to the left, while with my thumb I pressed forcibly upon the right side of the nose. My object was to lift the bone, and carry it a little over to the left side. During the effort, the bones were felt to crack and give way slightly, but not sufficiently. I then gave him chloroform, as the manipulation had proved very painful, and again pressed in the same manner and with great force. The restoration now seemed nearly or quite complete.

CASE 4. *Simple fracture and displacement of the lower ends of the ossa nasi to the left side. Attempts at reduction unsuccessful. Deformity remains. Chronic ulceration of the septum, &c.*

N. B. N., of Hunt's Hollow, aged 27 years. Two years since he was struck accidentally upon the right side of his nose by a board, and the ossa nasi were displaced to the left. A surgeon made an attempt to reduce them, but did not succeed, and they have remained displaced ever since.

The nose for a time was much swollen. A few months after the accident, a purulent discharge commenced from the right nostril, and at length an abscess formed in the right cheek. The abscess is now healed, but the nose continues to discharge pus, and occasionally it bleeds freely. There is a perforation of the septum, of the size of a three cent piece, which is continuing to enlarge.

No hereditary maladies in the family, except that, on his father's side, it has been generally observed that wounds do not heal kindly. The same is the fact with him. When a child, he was very subject to epistaxis; at sixteen, a pulmonary difficulty began, and he had more or less cough, with hæmoptysis, for two years. Since then his health has been good. He is a lawyer by profession, but of late he

has lived in the country upon a farm, and has accustomed himself to much out-door exercise.

CASE 5. *Simple fracture, followed by deformity.*

Mrs. J. A., aged 23 years. Fifteen years ago she fell on her nose, and broke down the ends of the ossa nasi. A surgeon of St. Gallen, in Switzerland, replaced them.

There has remained ever since a slight elevation of the ends of the bones and of the cartilage, giving to her nose an aquiline form. The elevated portion is slightly tender, and occasionally, in damp weather, it is painful.

It is probable that, in replacing the fragments, they were lifted too high. Possibly, however, the slight deformity is due to an exostosis.

CASE 6. *Simple displacement of both ossa nasi backwards. No treatment. Deformity.*

Miss H. S., of Buffalo. When three weeks old, a block of wood fell upon her nose as she was lying in the cradle. The nature of the injury was not understood by the parents, and no surgeon was called.

The ossa nasi are now, twelve years after the accident, much wider than is natural, and depressed. The nasal processes of the superior maxilla appear to have been spread asunder. This having occurred when the bones were in a cartilaginous state, the parts must have been rather bent than fractured, and in this condition they have ossified. The deformity is very striking.

CASE 7. *Simple displacement of the lower ends of the ossa nasi backwards, complicated with fracture of the cranium and os femoris. Death on the seventh day. No attempt to restore the bones to place.*

W. W., aged 45 years, fell from a two-story building. Drs. White and Hamilton in attendance.

The ossa nasi were displaced rather than broken, being forced backwards from their articulations with the nasal processes of the superior maxilla, but not completely separated from their articulations with the os frontis.

As the injury to his skull was likely to prove fatal in a short time, no attempt was made to adjust the ossa nasi. He died on the seventh day.

CASE 8. *Simple displacement of the lower ends of the ossa nasi to the left side. No treatment. Displacement remains.*

Miss S. W., aged 8 years. She was struck accidentally, by a piece of iron, on the right side of her nose. Her parents did not suppose any serious injury was received, and no surgeon was called.

Ten years after the accident she called upon me for the purpose of having the deformity remedied, if possible. The lower ends of both ossa nasi are pushed over to the left side. I advised no interference.

CASE 9. *Simple displacement of lower ends of ossa nasi to left side. No treatment. Deformity remains.*

R. Jackson, aged 18 years. No surgeon was employed.

Ten years after the accident the deformity was very striking, both bones inclining to the left side.

CASE 10. *Simple displacement backwards of the lower ends of the ossa nasi. No treatment. Deformity.*

Henry Orb, aged 11 years. The accident occurred in Germany, and, his parents not suspecting the nature of the injury, no surgeon was called. Thirteen years after, he was an inmate of the Buffalo Hospital, and I found the bones very much displaced backwards.

CASE 11. *Simple displacement of lower ends of ossa nasi to the right. No treatment. Deformity.*

Wm. Hingston, aged 9 years. No surgeon was called. Eighteen years after the accident the displacement still continued.

CASE 12. *Simple fracture and displacement of lower ends of the ossa nasi to the left side. No treatment. Deformity continues.*

Mathew Powell, aged 19 years. This case came under my notice nine years after the accident, and the displacement still continued. He did not, at the time, suppose his nose was broken, and he did not consult a surgeon.

CASE 13. *Simple fracture and displacement of lower ends of the ossa nasi to the left and backwards. Treated by a "handy man" in Ireland. Deformity remains.*

Michael Gibson, aged 15 years, of Ireland. Michael called upon what, in that country, is known generally as a "handy man," or an uneducated "bone-setter."

Fifteen years after the accident, the fragments remained displaced

CASE 14. *Simple displacement of ossa nasi backwards. No treatment. Deformity continues.*

Jacob Kibbs, a German, aged 7 years, fell from a height of forty feet, striking on his face. His parents did not suspect the injury, and no surgeon was called. Twenty-four years after this he became an inmate of the Buffalo Hospital. The nose was then almost flat. The ossa nasi appeared unusually wide, and were sunken between the processes of the upper maxillary bones, which latter might be recognized by two parallel ridges on each side of the nose, rising above the level of the ossa nasi.

CASE 15. *Simple fracture and displacement of the lower ends of the ossa nasi to the left side. Treated by a "handy man" in Ireland. Deformity continues.*

Michael Kane, aged 30 years, of Ireland. This patient was treated also by a "handy man." Twenty years after the accident he was an inmate of the Buffalo Hospital. The deformity was then very striking. Lower ends of both bones incline to the left.

CASE 16. *Compound fracture and displacement of lower ends of both ossa nasi to left side and backwards. Complete restoration.*

George Reid, of Erie County, aged about 24 years. While employed in a sawmill he was struck by some part of the machinery, and was soon after found insensible. I saw him four hours after the accident. He could give no account of the injury, but it was evident that the blow which rendered him insensible had been received only upon his nose.

The ossa nasi were loose, and easily made to move under the fingers. The lower ends were pushed to the left side, and a little backwards. There was a wound on the right side communicating with the bones and with the nasal passages. The hemorrhage was profuse.

I introduced a straight steel instrument—a director—into the superior meatus, and, assisted by my fingers upon the outside, easily replaced the bones. With a small compress also placed upon the left side, supported by a strip of adhesive plaster, I sought to retain the bones in place. This was found necessary on account of a manifest tendency to fall off whenever the pressure was removed. The nostrils were plugged to arrest hemorrhages, and cold applications made to the outside of the nose.

I have never seen the patient since, and cannot declare positively the result; but I have reason to suppose it is perfect.

CASE 17. *Compound fracture of the ossa nasi. Treatment unsuccessful. Deformity.*

Thomas Burns, of Oppenheim, Fulton County, aged 3 years. The accident occurred from the kick of a horse, producing also a wound on the side of the nose which communicated with the fracture. Dr. Peter Yost, of Oppenheim, was his surgical attendant. The bones still remain considerably displaced, fourteen years after the accident.

CASE 18. *Compound fracture and displacement of the lower ends of ossa nasi to the right side, and backwards, with fracture of the nasal process of the superior maxilla on the left side. Treatment partially successful.*

G. C., aged about 40 years, was kicked by a horse on the left side of his nose, producing insensibility and convulsions, which lasted an hour or more. A clever surgeon attempted to restore the bones by introducing into the nostrils a female catheter. I think the instrument was too large.

When I saw Mr. C., about two hours after the accident, the lower ends of both nasal bones were displaced to the right, and backwards. The nasal process of the superior maxilla on the left side was also broken in. With a straight steel director, and with only moderate force, I lifted the bones into place. The hemorrhage not having ceased, I introduced a lint plug into the bleeding nostril. After two years, I find the form of the nose nearly, but not quite, perfect.

CASE 19.—*Compound fracture of the ossa nasi, complicated with other severe injuries. Death on the twelfth day.*

John Gallaghan, aged 31 years. The frontal, with the superior and inferior maxillary bones, were broken in at the same time. I lifted both the ossa nasi and the fractured os frontis; the restoration of the fragments was complete, but the patient gradually sank, and died on the twelfth day.

CASE 20. *Compound fracture of ossa nasi, complicated with fracture of the cribriform plate of the ethmoid, os frontis, &c. Death after about three months. (See skull in my private collection.)*

H. G., of Brockport, N. Y., aged about 14 years, was kicked by

a horse, breaking in the ossa nasi, os frontis, and ethmoid bone. Dr. Thatcher, of Brockport, was called and dressed the wounds. The lad was slightly comatose for a short time. A small portion of brain escaped. Dr. T. lifted the depressed os frontis as well as he was able, but only very partially.

The lad recovered rapidly, and soon returned to school, where his intellect seemed as bright as before. He could also cut and split a cord of wood a day.

About three months after the accident, and about eight days after the discharge of pus had ceased altogether, he began to complain of pain in his head, and in six days died comatose.

The autopsy disclosed a fracture, with depression of the os frontis, ossa nasi, nasal processes of the superior maxilla and ethmoid. The processes of the superior maxilla were driven backwards and laterally into the orbits, and the anterior half of the cribriform lamella, with a portion of the os frontis, were driven quite up into the brain. The septum narium was broken across in several places, and could have been of no use in assisting to restore the ethmoid. I allude to the suggestions occasionally made, that in such cases we ought to seize the septum with a pair of forceps, and attempt, in this way, to bring down the septum and ethmoid together.

Most of the fragments were completely united in their new positions.

CASE 21. *Compound fracture and displacement of ossa nasi. Union without deformity.*

H. W., aged 13 years. William fell while running, and struck upon the corner of a stone step, breaking the lower ends of both ossa nasi, and forcing them directly backwards. I saw him within an hour, and found the nose already much swollen, and bleeding freely with a flesh wound on the right side reaching to the bones. The fracture was not perceptible to the eye, but a crepitus was very manifest.

I immediately lifted the bones with a straight steel director, and without difficulty. Six months after the accident no deformity remained.

CASE 22. *Depression of ossa nasi, and fracture, with depression of nasal process of superior maxilla on the right side. Union, with deformity, &c.*

Thomas Kelly, aged 4 years, was kicked by a horse. Dr. Pratt,

of Buffalo, was in attendance within two hours. Nose and face then much swollen. It is probable that, owing to the swelling, which the mother says was already considerable, the fracture was not observed. Dr. P. dressed a lacerated wound upon the upper lip.

One year after the accident, I find both nasal bones depressed through nearly their whole length, and especially in their lower halves. The right nasal process is much depressed, and the right nostril obstructed. The lachrymal canals upon this side are closed.

Ossa Nasi.

No.	Age when it occurred.	Time since it occurred.	Sex.	Character of fracture.	TREATMENT.	RESULT.		
						United or not.		Perfect or imperfect.
1	10 y'rs	1 y'r	M.	Simple	Lifted bones with a steel instrument	United	Slight lateral displacement	Imp.
2	5 "	36 y'rs	"	"	Treated by a surgeon, but treatment unknown	"	Lateral displacement, nasal obstruction, &c.	"
3	11 "	1 w'k	"	"	Lifted bones with a steel instrument	"	Nearly or quite perfect	Per.
4	25 "	2 y'rs	"	"	Treatment unknown	"	Lateral displacement, ulceration, and catarrh	Imp.
5	8 "	15 "	F.	"	Treatment unknown	"	Slight deformity	"
6	3 w'ks	12 "	"	"	No treatment	"	Nose very flat	"
7	45 y'rs	7 d'ys	M.	Compl'd	" "	N. U.	Death on the seventh day	"
8	8 "	10 y'rs	F.	Simple	" "	United	Lateral displacement	"
9	18 "	10 "	M.	"	" "	"	" "	"
10	11 "	13 "	"	"	" "	"	Nose very flat	"
11	9 "	18 "	"	"	" "	"	Lateral displacement	"
12	19 "	9 "	"	"	" "	"	" "	"
13	15 "	15 "	"	"	Treated by a "handy man"	"	Lateral and backward displacement	"
14	7 "	24 "	"	"	No treatment	"	Nose almost flat	"
15	30 "	20 "	"	"	Treated by a "handy man"	"	Lateral displacement	"
16	24 "	3 "	"	Comp.	Lifted bones with a steel instrument	"		Per.
17	3 "	14 "	"	"	By a surgeon; treatment unk'n	"	Bones displaced	Imp.
18	40 "	2 "	"	"	Lifted bones with a steel instrument	"	Nearly perfect	"
19	31 "	12 d'ys	"	Compl'd	Lifted bones		Died on twentieth day	"
20	14 "	3 m'os	"	"		"	Bones remain depressed; died in three months	
21	13 "	6 "	"	Comp.	Lifted bones with a steel instrument	"	No deformity	Per.
22	4 "	1 y'r	"	Compl'd	No treatment	"	Deformity, nasal obstruction, and fistula lachrymalis	Imp.

REMARKS.

"Hippocrate se plaint que les chirurgiens de son temps y vont avec une sorte de timidité blâmable, et les malades eux-mêmes, qui payeraient si cher pour éviter une difformité, ne savent pas se prêter à ce qui est nécessaire. Ces réflexions, pour etre anciennes, n'en sont pas moins applicables à notre temps, et j'ai vu plusieurs fractures du nez dont la réunion vicieuse témoignait à tous les yeux ou de la faute du chirurgien ou de l'impatience des malades."—*Vidal* (*de Cassis*).

I have, at the very outset, deviated widely from the rule which I had laid down for myself, not to report any cases except those which had been treated by regularly qualified surgeons. Of the twenty-two cases of fracture of the ossa nasi, only thirteen were seen by a surgeon in time to afford relief. It seemed to me necessary that we should be instructed how frequently the nature of this accident was overlooked by the friends, and even by the surgeon himself, to the end that we might be thus admonished of the necessity of always instituting in such cases, careful and thorough examinations. In some of the cases reported, where surgeons were called in time, and a deformity remains, it is not improbable that the accident was not recognized. The rapidity with which swelling ensues after severe blows upon the nose, concealing at once the bones, and lifting the skin even above its natural level, explains these mistakes.* The nose, also, is remarkably sensitive, and the patient is often exceedingly reluctant to submit to a thorough examination. It ought, however, not to be forgotten that the omission on the part of the surgeon to do his duty will not always be excused, even though the patient himself has protested against his interference, especially where an organ so prominent, and so important to the harmony of the face, is the subject of his neglect or maladjustment, since the most trivial deviation from its original form or position, even to the extent of one or two lines, becomes a serious deformity.

No one will be led into a false prognosis by a record of such cases so long as we are careful to point them out and separate them in our analysis, from those in which surgeons have been retained. I shall think it necessary, also, to mention several cases of fractures of the *septum nasi*, in which the character of the injury was not at first understood, and no surgical aid was obtained; but in no other

* "The diagnosis is often very difficult, even where there exists considerable displacement on account of the swelling."—Malgaigne, *op. cit.*, vol. i p. 366.

bones shall I find such frequent occasions to record similar oversights.

Of the thirteen cases to which a surgeon was called at first, three died within a short time, and no attempt to restore the ossa nasi was deemed necessary or proper. In two other cases it is probable that the nature of the injury was not recognized. Of the eight remaining cases, and in which attempts at restoration were immediately made by qualified surgeons, five are marked imperfect.

When the ossa nasi are struck with considerable force, from before and from above, a transverse fracture occurs usually within three to six lines of their lower and free margins, and the fragments are simply displaced backwards, or if the blow is received partially upon one side, they are displaced more or less laterally. This is what will happen in a great majority of cases, as I have proven by examinations of the noses of those persons who have been the subjects of this accident, both before and after death, and by repeated experiments upon the recent subject.

These fragments are generally loose and easily pressed back into place by the use of a proper instrument. A silver female catheter, which is so frequently advised by surgeons, may answer well enough in a few instances, but it will much more often fail. The diameter of the meatus at this point, where the instrument must reach in order to make effective pressure upon the ossa nasi, is on the average not more than two lines, and when the membrane which lines it is injured, it becomes quickly swollen, and reduces the breadth of the channel to a line or less. Under these circumstances, any instrument of the size of a female catheter could only be made to reach and press against the nasal process of the superior maxilla, which at this point is too firm and unyielding to allow it to pass without the employment of unwarrantable force. In this way it happens that the operator is occasionally surprised to find how much resistance is opposed to his efforts to lift the bones, and after repeated unsuccessful attempts the case is not unfrequently given over. If, however, he had used a smaller instrument, he would have found almost no resistance whatever. A straight steel director, or sound, or sometimes even a much smaller instrument, if possessing sufficient firmness, is more suitable than the catheter. For the same reason, also, one ought never to wrap the end of the instrument with a piece of cotton cloth as some have, I suspect, without much consideration, recommended.

What I have said of the facility with which these bones may be

replaced, when a proper instrument is employed, is true only when the treatment is adopted immediately, or at most within a few days after the accident. It is remarkable how rapidly these bones unite. In Case 3, the union was quite firm on the seventh day, so that I was obliged to use great force to replace the fragments; indeed, the fracture was reproduced. Hippocrates thought the union was generally complete in six days. Boyer, Malgaigne, and others have noticed the fact that these fractures were repaired with great rapidity. Nor has Malgaigne, whose observations are always very accurate, overlooked the fact, also, that their repair is effected without the interposition of provisional callus, but as it were "*par premiere intention.*" My own observation confirms this statement. Among all the specimens which I have seen in the various college and private collections illustrating fractures of the ossa nasi, and amounting in all to over forty, in no instance has there been detected, after a careful examination, the slightest trace of provisional callus.

I am not certain that it will always be found so easy to retain these loose fragments in place, as it is to replace them. The very swelling which takes place so promptly under the skin tends to depress the fragments, unsupported as they are by any counter force; a tendency which, possibly, is in some instances increased by attempts on the part of the patient to clear his nostrils by snuffing and hawking. I have, in one instance, Case 16, noticed very plainly a motion in the fragments when such efforts were made. How we are to remedy this I am not prepared to say. None of the plans which I have seen suggested possess, in my estimation, much practical value. Few patients will consent to the introduction of pledgets of lint, or of stuffed bags, or, indeed, of anything else, sufficiently far up into the nostril to answer any useful purpose. The membrane is too sensitive and too intolerant of irritants to enable us to have recourse generally to such methods. Then, too, it would require on the part of the surgeon more than ordinary tact to accomplish so nice and delicate an adjustment of the supports from below as these cases demand, where the slightest excess of pressure or the least fault in the position of the compress must defeat the purpose of the operator.

A more considerable force than that which I have first supposed, will break, generally, the ossa nasi transversely and a little above their middle, while, at the same time, the nasal processes of the superior maxillary bones may suffer slightly.

With neither of these accidents is the cribriform plate of the ethmoid likely to be broken or disturbed. Indeed, in numerous experiments made upon the recent subject, and in which the force of the blow was directed backwards and upwards, breaking and comminuting the nasal bones above and below their middle, with, also, the nasal processes of the superior maxillary bones, and the septum nasi, the cribriform plate of the ethmoid was, without an exception, uninjured. The exceeding tenuity and flexibility of the septum nasi at certain points, prevents effectually the concussion from being communicated through it to the base of the brain. If, therefore, after these accidents, cerebral symptoms are occasionally present, as in Cases 16 and 18, they must be due rather to the concussive effects of the blow upon the very summit of the nasal bones, where they rest immediately upon the nasal spine of the os frontis, or to some direct impression upon the skull itself.

The amount of force requisite to break in the nasal bones, at their upper third, is very great; no less, indeed, than is requisite to fracture the os frontis. If they do finally yield at this point, then no doubt the base of the skull must inevitably yield also. Nor do I think patients could often be expected to recover from an accident so severe. To this class of fractures belongs Case 20, in which not only the whole of the nasal bones were sent in—the nasal spine being broken at its base—but also the os frontis was depressed, the nasal processes of the upper maxillary bones broken and greatly displaced, and the anterior half of the cribriform plate of the ethmoid forced up into the base of the brain. If it is meant that in *these* cases the patient is in danger from injury done to the base of the skull, through the fracture and depression of the ossa nasi, we can appreciate the value of the opinion; but we do not understand how this danger can exist when the nasal spine of the os frontis is not broken, and the upper ends of the nasal bones are not displaced backwards. But, admitting that it were possible in this way to force up the base of the skull, it does not seem to me that we ought to attach any value to the advice occasionally given, to attempt to restore the broken ethmoid by seizing upon the septum and pulling downwards. A force sufficient to break the base of the skull, never fails to comminute and detach almost completely the septum nasi. We are to proceed in such a case as we would in a case of broken skull. We must lay open the skin freely, and with appropriate instruments seek to elevate and remove, if necessary, the fragments.

Indeed, after such accidents, we shall generally see plainly enough that death is inevitable, and that our services will be of no value.

Occasionally, I have observed, the bones are neither broken at their lower ends, nor through their central diameters, but only at their lateral serrated or imbricated margins. This is rather a displacement, or a dislocation, than a fracture. It is more likely to happen, I think, in childhood than in middle or old age (Case 22), and sometimes the lower ends only *bend* backwards or sideways. If there is more complete displacement, the upper ends are not usually forced backwards, but rather a very little forwards from their articulations with the os frontis, and the bones then swing, as it were, upon the lower ends of the nasal spine, as upon a pivot. In this condition, they are very firmly locked in, and it requires considerable force, applied under their lower extremities, to restore them to place. In Case 1, the bones were thus forced sideways, and without a fracture. In Cases 10 and 22, they are displaced backwards; and probably, also, the same thing has happened in several of the ancient cases, occurring in infancy or childhood, and the history of which is incomplete.

In children, also, the nasal bones may be spread and flattened, the lateral margins not being depressed or displaced, but only the mesial line or arch forced back, so as to press aside the processes of the superior maxilla, which deformity may become permanent, as in Cases 6 and 14.

The unusual morbid phenomena which followed in Case 4, such as catarrh, ulceration, &c., ought to be regarded as accidents due to the state of the general system, and as having no connection with the fracture, except as this injury served to awaken certain vicious propensities. Yet it is true that Mr. Benjamin Bell and others have spoken of "tedious ulcers," "polypi," impeded respiration, and impairment of the sense of smell and of speech, as circumstances apt to result from these injuries, and it is not improbable that such consequences have often followed.

CHAPTER II.

SEPTUM NARIUM.

CASE 1. *Lateral displacement of cartilaginous portion. No surgeon employed. Deformity remains. Nasal catarrh.*

W. H. W., of Cherry Valley, aged 15 years. Struck accidentally by a brickbat. The nose became immediately much swollen, and no surgeon was called. Eight years after the accident, the septum remained displaced laterally and to the left side, producing a slight lateral displacement of the end of the nose. He cannot blow freely through the left nostril, and he has had a catarrhal discharge from the same nostril from that time to the present.

CASE 2. *Cartilaginous portion broken down. A surgeon employed. Great deformity.*

Ledyard Littlefield, aged 19 years, was struck on the top of his nose by a ball. It became immediately much swollen. A surgeon was called, who said that no serious accident had occurred, but that when the swelling should subside it would be all right.

The nose is now, thirty-three years after the accident, almost perfectly flat, the cartilaginous portion of the septum being pressed entirely down and to one side.

CASE 3. *Cartilaginous portion broken down. A surgeon employed. Marked deformity.*

John Baptiste, aged 26 years, a Mexican by birth. The nose was broken by a blow. Dr. Beecher, of New Haven, Connecticut, was called. Four years after the accident, the septum remained displaced, and the nose much flattened.

CASE 4. *Fracture of the cartilaginous portion of the septum nasi. Slight deformity remaining.*

James Murphy, aged 25 years. The accident occurred three years ago, and the nose is slightly turned to one side by displacement of the septum. No surgeon was employed.

CASE 5. *Fracture of septum nasi. Deformity. Curious effect upon right side of face.*

A. A. C., aged 16 years, fell on his face upon the ice. The nose bled profusely. Employed no surgeon.

Seven years after the accident he called upon me, supposing that he had a polypus nasi. The septum is displaced to the right side, so as to almost completely close this nostril. This obstruction has existed from the time of the receipt of the injury. In very cold weather, when the vessels of the membrane are constringed, the passage is somewhat more free. The left nostril is proportionably wide.

During the last four or five years, the right side of his face has been subject to profuse perspirations. It is almost constant in summer, and frequent in winter. The line of division between the perspiring and non-perspiring portions of the face passes perpendicularly from the top of the centre of the forehead, along the ridge of the nose, and down to the centre of the chin. The phenomenon is due, perhaps, to an increased vascularity in the right side of the face; possibly to some peculiarity in the condition of the nervous trunks, occasioned by the nasal obstruction.

CASE 6. *Fracture of the cartilaginous portion of the septum nasi. No surgeon. Permanent deformity.*

Shannon, of Buffalo, aged nine years, fell on his face while runnine. No surgeon was called. The cartilaginous portion of the septum is broken at its junction with the perpendicular plate, and from this point downwards it inclines to one side, carrying with it the whole of the lower portion of the nose. Examined by myself two years after the accident.

CASE 7. *Fracture of the cartilaginous portion of the septum. Deformity. Successful operation for its relief.*

H—— C——, of Chicago, aged 18 years. This young man fell, while walking in his sleep, from a two-story window, striking upon his face. A surgeon was called, but he did not discover the nature of the injury to his nose.

One year after the accident he called upon me for relief. The cartilaginous portion of the septum was broken just at the ends of the nasal bones, and forced backwards about three lines, producing a striking depression at this point of the ridge of the nose, while at the same time the end of the nose was thrown up. The deformity

was very unseemly, and annoying both to himself and to his friends, who at first could scarcely recognize him. From a handsome Grecian, his nose had been converted into an ugly "pug."

Without promising much, I consented to operate.

Operation.—I introduced a narrow, sharp-pointed bistoury through the skin of the nose on the right side, and resting its edge upon the ridge at the junction of the cartilage with the ossa nasi, I cut the cartilaginous septum perpendicularly backwards about three lines, and then making a gradual curve with my knife, I cut downwards about eight lines towards the end of the nose. The intercepted portion of cartilage could now be easily lifted with a probe, and the line of the ridge of the nose completely restored. It was at once apparent, also, that lifting the cartilage would depress the tip of the nose, and restore its symmetry.

To retain the cartilage in place, I constructed a gutta percha splint, of the length and shape of the nose, but so formed along its middle as that it would not press upon the cartilage which I had lifted, resting well upon the ossa nasi, but not touching the ridge from the lower ends of these bones to the tip of the nose, at which latter point it again received support. I now passed a needle, armed with a stout ligature, through the upper end of the uplifted cartilage, transfixing, of course, the skin on both sides of the nose, and this I tied firmly over the splint. This accomplished, the important object of pressing backwards and downwards the tip of the nose, and thus tilting up the upper part of the ridge and septum, and of more effectually securing the cartilage in place by lifting it directly with the ligature. On the second day the ligature was removed, but the splint was continued two weeks, during most of which time a band was kept drawn across the lower end of the splint, and tied behind the neck.

To prevent the cartilage from falling back when final cicatrization occurred, I pressed the sides of the splint firmly towards each other, just below the incision, so as to press as much as possible the walls of the nares into the fissure in the septum, made by lifting it up.

The result is a complete and perfect restoration of the nose to its original form.

Septum Narium.

No.	Age when it occurred.	Time since it occurred.	Sex.	TREATMENT.	RESULT.		
					United or not.		Perfect or imperfect.
1	15 y'rs	8 y'rs	M.	Surgeon employed, but no treatment	United	Lateral displacement and catarrh	Imp.
2	19 "	30 "	"	Surgeon employed, but no treatment	"	Backward and lateral displacement. Nose flattened	"
3	26 "	4 "	"	Surgeon employed, but no treatment	"	Backward and lateral displacement. Nose flattened	"
4	22 "	3 "	"	No surgeon employed, and no treatment	"	Lateral displacement, and nose turned to one side.	"
5	16 "	7 "	"	No surgeon employed, and no treatment	"	Lateral displacement, and obstruction of nostril. One-half of face subject to abnormal sweats	"
6	9 "	2 "	"	No surgeon employed, and no treatment	"	Lateral displacement of septum and nose	"
7	18 "	1 "	"	Surgeon employed, but no treatment	"	End of nose tilted upwards. Successful operation after one year	"

REMARKS.

Of the "results of treatment" in cases of fractures or displacements of the septum narium, we have no facts or conclusions to record. In three of the seven cases no surgeon was employed, and in these, also, no surgical treatment was adopted, and it is quite probable that in only a small proportion of all the cases was the nature of the accident recognized. Such at least has been generally the statement of the patients themselves. The same causes will explain this which have been invoked to explain similar oversights in cases of broken ossa nasi. To which we may add, as an additional reason why it may be overlooked, the frequency of lateral distortions or deviations in the natural development of this septum.

The cartilaginous portion of the septum is that which is most frequently displaced by violence, and then it is usually at the point of its articulation with the bony septum. Next in point of frequency the perpendicular nasal plate is broken, and especially where it approaches the vomer. We omit in this enumeration, of course, those cases where the nasal bones themselves are broken down, in most or all of which the perpendicular plate is more or less fractured and displaced. We cannot say how often the vomer is broken, since it is beyond our observation, except in autopsies. It is probable, however, that the force of the concussion rarely reaches it, the cartilage or the perpendicular plate giving way first and easily.

Where the deviation is only lateral, the results are less serious, yet sufficiently so in a few instances to demand our attention. Lateral obliquity of the lower portion of the nose follows generally, but not uniformly, a lateral displacement of the cartilage, and when it does exist it is not always proportioned to the amount of displacement existing in the septum, so that the septum is then made to project obliquely across the nasal passage, causing often a serious obstruction and permanent inconvenience. In Case 1, a permanent catarrh accompanied this obstruction, and in Case 5, a curious sweating phenomenon, which is particularly detailed in the report. Neither of these circumstances ought, however, to be regarded as probable results, but only as rare instances of singular morbid events. Yet a catarrhal affection in the obstructed nostril is not very infrequent. It was observed not only in Case 1 of this chapter, but also in Case 4 of the chapter treating of broken ossa nasi. To what it may be due I shall not attempt to explain.

A depression of the cartilage forming a portion of the ridge of the nose is necessarily accompanied with a corresponding degree of lateral displacement, with or without fracture of its perpendicular portion, and produces, therefore, not only great deformity, sometimes a complete flattening of the end of the nose, but, also, in some instances, complete obstruction of the nostrils.

We conclude, from the limited experience which we are able to present, that fractures and displacements of the septum narium are generally followed by permanent deformity, and occasionally with still more serious results. We suggest, therefore, a more careful examination in recent injuries, with a view to the ascertainment of its lesions, and it would be well, certainly, if we could devise some reliable mode of treatment.

With no actual experimental knowledge upon this subject, we are left to the suggestions of others, and to our own speculations, neither of which are very satisfactory. It is doubtful whether a partition so thin and unsupported can ever be well adjusted and supported by artificial means. We possess, however, one advantage in the treatment of this accident which we do not in the treatment of broken ossa nasi, viz: facility of observation and of approach, and if we can do little with plugs and supports in the one case, we may possibly do more in the other. Nothing seems more rational, then, than to plug carefully and equally each nostril, with pledgets of lint, while we cover the outside of the nose completely with a nicely moulded gutta percha splint or case, which ought to be made

to press snugly upon the sides, and permitting these to remain for several weeks, or until the cure is completed. The *papier mache* of Dzondi, employed by him in cases of broken ossa nasi, would be equally applicable here; but the gutta percha, as being more plastic, and hardening more quickly, ought to be preferred.

Attempts to remedy the deformities of the nose at a later period, belong to the department of anaplastic surgery, and the modes of procedure must be varied according to the circumstances of the case. One instance of this kind I have related in Case 7, which was highly satisfactory, and which may serve as an example of what we may sometimes accomplish.*

CHAPTER III.

OSSA MAXILLARIA SUPERIORA.

CASE 1. *A compound fracture of the nasal process of the superior maxilla, complicated with fracture of the ossa nasi.*

G. C. (See Case 18 of Fractures of the Ossa Nasi.)

CASE 2. *Fracture of both upper maxillary bones, with partial separation at their articulations, and depression of the right malar bone. Recovery with permanent depression of the malar bone.*

Harvey, of Fond du Lac, aged twenty years. Harvey was thrown backwards from a loaded cart, one wheel of the cart passing over his face. He was taken up unconscious. I saw him next day. Consciousness had then returned.

The right malar bone was broken from its articulations, and forced down upon the antrum about three lines. Both superior maxillæ were loosened from their articulations, and could be moved laterally, the motion producing a slight grating sound. The same motion and grating occurred whenever he attempted to swallow. No effort was made to elevate the malar bones, nor did I find any means necessary to retain the maxillary bones in place, the amount of displacement being very inconsiderable, and never sufficient to be observed by the eye. Cool lotions were applied constantly to the

* See M. Dieffenbach's operation.—*Gazette des Hôpitaux*, 22 Fev., 1842. A Paris.

[illegible] was sustained by a liquid diet. On the ninth [illegible] the fragments had ceased, and on the twenty-[illegible] the patient was completely recovered, with only the [illegible] remaining.

[illegible] *Removal* [illegible] *depression of malar bone.*

M. P., of [illegible], Wyoming County, aged about thirty-four years, was thrown from a height, striking upon his face, and forcing the right malar bone down upon the antrum of the superior maxilla. Dr. [illegible] of [illegible], and myself were called.

The deformity produced by the sinking of the malar bone was very striking, and the patient, as well as ourselves, was very anxious to have it remedied if possible. We found some of the teeth upon the side of the fracture loose, and we determined to extract them and press up the bone with an instrument introduced through the empty sockets. The first attempt to extract a molar tooth, however, brought down several teeth, and the whole floor of the antrum. The detachment of this fragment was also now so complete that we believed it necessary to remove it entirely, a labor which was accomplished with infinite difficulty, and with no little hazard to the patient, as dissection had to be extended very far back into the throat, and in the end it was not effected without bringing out, attached to the fragment of maxillary bone, a considerable portion of the pterygoid process of the os palati.

The time occupied in this operation was at least one hour, during which we were every moment in the most painful apprehensions lest we should reach and wound the internal carotid, which lay in such close juxtaposition to our knife that we could distinctly feel its pulsation. After its removal, the hemorrhage was for an hour or more quite profuse, and could only be restrained by sponge compresses pressed firmly back into the mouth and antrum.

When the hemorrhage was sufficiently controlled, we proceeded to examine the antrum, the floor of which being removed entire, permitted the finger to enter freely. The restoration of the malar bone was now accomplished without much difficulty, and with only moderate force.

Two years after the accident, the face presented, externally, no traces of the original injury. The malar bone seemed to be as prominent as upon the opposite side, and there was no perceptible falling in where the teeth and alveoli were removed. During several

months after the removal of the bone, the antrum continued to discharge pus, but at length a semi-cartilaginous production closed in the cavity below, entirely reconstructing its floor, and the discharge ceased. Since then he has experienced no further inconvenience.

CASE 4. *Fracture of both upper maxillary bones, complicated with fractures of the nasal bones, and of the lower maxilla. Death on the twelfth day.*

(See Case 19 of Fractures of the Ossa Nasi.)

CASE 5. *Fracture of left nasal process, compound and complicated with fracture of the os frontis, nasal bones, &c. Death in three months.*

(See Case 20 of Fractures of the Ossa Nasi.)

The nasal process upon the left side was broken just above the root of the cuspid tooth, and its upper end was inclined inwards towards the nasal passage and backwards, until it was completely buried. In this situation it had become firmly united to the bony and soft tissues into which it was brought in contact.

CASE 6. *Fracture of the right nasal process, complicated with fracture of the ossa nasi et cart. Deformity remains.*

(See Case 22 of Fractures of the Ossa Nasi.)

Ossa Maxillaria Superiora.

No.	Age when it occurred.	Time since it occurred.	Sex.	Character of fracture.	TREATMENT.	RESULT.			
						United or not.	When united.		Perfect or imperfect.
1	40 y's	2 y's	M.	Comp. compl'd	Lifted with a steel instrument	United		Nearly perfect	Imp.
2	20 "	4 w's	"	Comp. compl'd	Cool lotions and rest	"	9 d's	Slight depression of the malar bone	"
3	34 "	2 y's	"	Comp. compl'd	Elevation of malar bone through an opening made at the base of the antrum	"		No deformity	Per.
4	31 "	12 d's	"	Comp. compl'd	No treatment; but rest, &c.	"		Death on twelfth day	Imp.
5	14 "	3 m's	"	Comp. compl'd	No treatment; but rest	"		Death in three months	"
6	4 "	1 y'r	"	Comp. compl'd	No treatment; but rest, &c.	"		United with depression	"

of the skull. The instrument ought to be made of the best steel, and with a broad, sharp-cutting thread. A slight incision being made through the skin, and down to the centre of the malar bone, the elevator is then screwed firmly into its structure, and now its elevation and adjustment may be accomplished with the greatest ease. In case the surgeon is not provided with this excellent instrument, a joiner's gimlet might answer tolerably well.

CHAPTER IV.

MAXILLA INFERIOR.

CASE 1. *Comminuted fracture. Union without deformity.*

Andrew Vandwie, aged twenty-four years. Fracture produced by a blow from a club. On the right side the jaw was broken just in front of the angle, and one molar tooth partially dislocated. On the left it was broken near the anterior mental foramen, and the corresponding tooth was partially dislocated. Both fractures were oblique.

I was called three days after the accident. The face was then much swollen. Assisted by Dr. John Trowbridge, I applied a felt splint, which was moulded to the form of the chin and face. I had previously extracted the loosened tooth, situated in the line of the most anterior fracture, chiefly with a view of closing the jaws completely, and of permitting him to imbibe his food through the opening thus made. I also replaced the loosened molar. No interdental splints were employed. On the sixth day we found that the sides of the felt splint being flexible, allowed, when the retentive bandages were applied, too much lateral pressure. The posterior fragments were, in consequence, made to fall inwards. We therefore substituted a well-moulded and well-padded copper splint, constructed with broad and slightly expanded wings. This apparatus was continued to the close of the treatment.

On the thirty-sixth day after the accident, the dressings were finally removed, and union was complete. The form of the jaw and the line of the teeth were perfect. No provisional callus could be felt. During a part of the time the patient had applied fomen-

tations of hops and vinegar, and without my knowledge. In consequence of this the acetate of copper had produced several slight ulcerations upon the skin, which soon healed when the splint was taken off.

About a week later I found the molar tooth, which I had replaced, loose and troublesome. I therefore removed it altogether. The cure was complete.

CASE 2. *Comminuted fracture. Union delayed. Result perfect.*

N—— B——, aged fifteen years, was struck violently with the heel of a man's boot, while lying upon the floor and upon his back. Fracture near the anterior mental foramen upon both sides, oblique. Suitable dressings were applied by a surgeon in Oswego, but considerable difficulty was experienced in retaining the fragments in place.

About two months after the accident he consulted me, the bones not having yet completely united. The dressings had been removed. I advised nothing but careful use of the jaw, and in a short time the union was complete and perfect.

CASE 3. *Compound comminuted fracture. Union without deformity.*

Jenks, a canal boatman, aged about twenty-five years, was struck by a stone thrown with great violence, breaking the inferior maxilla, on the left side, near the anterior mental foramen. A portion of the alveolar margin was also broken off, containing the sockets of three teeth.

Dr. Maxwell, of Lockport, dressed the fracture. Five days after the accident, the patient called on me, having continued upon his boat until he reached Buffalo. The face was then much swollen, the anterior fragment slightly displaced, and the portion of the alveoli, which had been secured in place by wires ingeniously belted upon the teeth, was quite loose. I removed the teeth and alveoli, placed cork splints between the molars, and applied a moulded pasteboard splint to the chin, securing it in place with a four-tailed bandage.

I found that, with this apparatus, it was impossible to prevent the anterior fragment from being slightly displaced backwards; nor could I draw the bandage so tight that, in the act of deglutition, a motion and grating were not perceptible between the fragments.

The union was completed in a few weeks. I think in about three, without any perceptible deformity.

CASE 4. *Simple fracture. Union without deformity.*

—— of Colesville, aged about forty years. Dr. Parker, of Wyoming County, was in attendance. On the third day, Dr. Parker requested me to see the case with him, as he had some difficulty in retaining the fragments in place.

We found that, during the absence of Dr. Parker, he had carved from a block of wood, a splint which fitted accurately the chin and face, and served the purpose admirably for which it was intended. The fragments were well in place, and without interdental splints he was able to receive nourishment between his teeth. The dressings were permitted to remain. Four years after, I learn that the jaw is perfect.

CASE 5. *Compound comminuted fracture. Union without deformity.*

C—— B——, of Little Falls, aged fifty-five years. Fracture through the shaft caused by the kick of a horse. A small fragment of the alveoli with one molar tooth was broken off, and removed by the surgeon at the first dressing.

Dr. Green, of Little Falls, dressed the fracture with a four-tailed bandage, pasteboard, &c., without interdental splints.

Seventeen days after the accident, I re-dressed the fracture at my college clinic. I found the fragments nicely in apposition, and not movable.

I applied an apparatus made entirely of leather, and of my own construction. The result I do not know positively, but as it was in place and united on the seventeenth day, I think I may assume that it is perfect.

CASE 6. *Compound comminuted fracture. Slight permanent deformity.*

John Keef, an Irish laborer, aged seventeen years. John was thrown from a wagon breaking his leg at the same time. The inferior maxilla was broken on both sides through the shaft, and, also, exactly in the centre, vertically, between the central incisors.

I dressed the jaw with a four-tailed bandage, but found great difficulty in bringing up the left fragment to a line with the right, and therefore closed the jaws, and, finding that the left side fell three lines below the right, I placed a pine-wood wedge between the teeth on the right side, and drew the jaw up firmly. It now lacked only about half a line of being in place.

I had not thereafter much difficulty in maintaining quiet and

apposition of the fragments, and I supposed, from repeated examinations, that they were in exact line, until four weeks after the fracture had occurred, when I discovered that the central fragments were lifted about two lines above the lateral, and, also, slightly carried back; and although union had not taken place, yet they could not be replaced by any moderate force. The bones united with this slight deformity. Four days later no motion was perceptible, and the displacement seemed to be rather less. From this time the dressings were discontinued.

CASE 7. *Compound comminuted fracture. Union without deformity.* Augustus Cotesworth, aged eleven years, was kicked by a horse, producing a fracture on the left side of the jaw, between the first and second incisors, with an external wound communicating with the fracture. There was also a fragment of nearly two inches in length broken off from its lower margin. Four teeth were knocked entirely out from the upper jaw, and the face was badly cut and bruised. All the teeth in the lower jaw remained firm. The fracture was oblique. I removed immediately the loose fragments of bone. Between the teeth I placed splints of gutta percha, covered with cotton cloth. A firm and well padded splint of gutta percha was also applied to the under side of the chin, with broad wings, penetrated with fenestra, through which bands were passed, to be subsequently fastened over the top of the head. Care was taken that the sides of the splint should not press too snugly against the sides of the face and jaw. Corresponding to the wound in the face, an opening was made in the splint, through which the wound could be dressed, and the matter be permitted to escape.

Very little difficulty was experienced in the treatment of this case. The result is a cure without any deformity except what results from the scar on the face.

CASE 8. *Compound comminuted fracture, with fracture of the superior maxilla, ossa nasi, &c. Death on the twelfth day.*

John Gallaghan, an Irish laborer, aged thirty-one years, admitted to the hospital, October 3, 1851, with a fracture of the inferior maxilla, on the right side, near the centre of the shaft. Fracture compound, oblique, and comminuted. The ossa nasi, and ossa maxillaria superiora were also broken and displaced. Patient partially conscious.

I made only slight attempts to adjust the fragments, as death

seemed inevitable. He died comatose, on the twelfth day. (See Case 19 of Fracture of the Ossa Nasi.)

CASE 9. *Simple fracture. Result not perfect.*

R—— B——, aged thirty-nine years. Fractured obliquely across the right angle of the jaw. Dr. Billings, of Hamilton, C. W., dressed the fracture, and, as far as I can judge, skilfully, with a four-tailed bandage. The bandage was continued three weeks. On the sixth week, Dr. B. extracted the last molar upon that side, finding that it interfered with the closure of his jaws.

Seven weeks after the accident, the patient called upon me. The fragments were united, but there was a large amount of callus upon the outside, and the posterior fragment was lifted up, so that the teeth were not on a line. The jaw does not close perfectly.

CASE 10. *Comminuted fracture. Union delayed.*

Andrew Mahoney, aged twenty-six years, had his jaw broken by a blow with a club. On the right side, the fracture is between the two last molars. On the left side, it is broken just in front of the first molar. One of the molars was knocked completely out. He called on me seventeen days after the accident, and at this time no dressings had been applied.

The right side of the face continued much swollen. The fragments were loose and much displaced. On the left side, the anterior extremity of the posterior fragment fell inwards towards the mouth, and the whole anterior or central fragment was depressed and drawn backwards.

Assisted by Dr. Boardman, I applied a gutta percha splint to the outside of the jaw and face, and moulded splints of the same material between the teeth. The whole was secured by bandages very carefully and accurately. About ten days after this dressing was applied, he disappeared, and I have not seen him since. In the mean time, however, the fragments were kept tolerably well in place, but as the bones had not united at the end of four weeks, I suspect it has resulted in deformity.

CASE 11. *Simple oblique fracture. Result perfect.*

I. W. S., of Darien City, aged twenty-six years, was struck by a club in the hands of some unknown person, while walking at night in one of the streets of Buffalo. He was for a moment bewildered, but never completely unconscious. The next morning he

called upon me. The inferior maxilla was broken obliquely, on the right side, just anterior to the last molar. The anterior fragment was displaced downwards and backwards.

Assisted by Drs. Nicholls and Pupikofer, I applied a gutta percha splint to the outside of the chin and face, and between the teeth I placed gutta percha wedges, moulded to the teeth and gums. The fragments now seemed to be in place, and well supported. S. returned home the same day, and soon after placed himself under the care of Dr. Ganson, of Batavia, who removed the gutta percha and substituted other dressings. Four months after the accident, I found the fragments perfectly in place, and no remaining deformity.

CASE 12. *Simple fracture. Result perfect.*

Joseph McEllicott, aged twenty-two years. Fracture near the angle of the inferior maxilla, on the right side.

It was treated by Dr. Johnson, of Cattaraugus. Bony union occurred in three weeks from the time of the fracture, and without deformity. This case was examined by myself soon after the cure was completed.

CASE 13. *Fracture and union without deformity.*

Albin Vanderheyden, aged thirty-seven years. The fracture occurred through the angle, on the right side. I examined the bone twenty-five years after the accident, and no deformity or imperfection could be discovered.

CASE 14. *Compound comminuted fracture, through the symphysis. Union with slight deformity.*

Norman Mason, aged twenty-five years. Broken by the kick of a horse. Left lateral incisor completely displaced, and a large piece of the alveoli detached. Dr. S. G. Ellis, of Gowanda, N. Y., dressed the fracture, securing the loosened fragment by the mainspring of a watch, made fast to the teeth by a silver wire, and closing the mouth completely, without any interdental splint. Upon the outside he placed a pasteboard splint and bandages. On the fourth week a fragment exfoliated, and came out under the chin. The union was delayed some six or eight weeks.

I examined the jaw ten years after it was broken, and found the line of a vertical fracture exactly through the symphysis mentis. The left half of the chin was slightly elevated, and the whole of that side of the shaft was smaller than the right. He cannot close his teeth perfectly, yet he can close them sufficiently for the pur-

poses of mastication. There is no perceptible external deformity. It must have been the loosened fragments of the alveoli secured by the wire, which subsequently came out through an opening below the ramus.

CASE 15. *Comminuted fracture. Union without deformity.*

Frederick Wm. Stephen, aged four years. His face was traversed by the wheel of a loaded cart, breaking the inferior maxilla through its shaft, on both sides. Assisted by Dr. Jno. Boardman, I proceeded at once to adjust and dress the broken fragments. To the chin and face we applied gutta percha splints, moulded carefully and accurately to the surfaces upon which it was laid. We employed, also, the same material as an interdental splint, having previously covered it with cotton cloth. It was observed that the posterior fragment was much higher on the right side than on the left, and it was found, also, exceedingly difficult, after the fragments were replaced, to prevent the left side from falling. We therefore placed the gutta percha only between the molars of the right side, leaving the left without any similar support, and now, by the pressure of the bandage, the left side was lifted and retained.

During several days, the swelling about the neck and face was very great, and the apparatus had to be frequently readjusted. The interdental splint, also, became displaced several times.

Bony union was much delayed, not having been complete until about the forty-second day. The dressings had been removed more than two weeks before this.

No perceptible deformity remained after the union was completed.

CASE 16. *Simple fracture. No treatment under fourteen days. Result unknown.*

Frederick Wm. Mande, aged forty three years. Fractured by a blow from a man's fist. The fracture was simple, and upon the right side, between the first and second bicuspid.

Frederick did not suppose his jaw was broken until two weeks after the injury was received, at which time he called upon me. A large swelling existed then, on the outside of the jaw, and the fragments were out of place and movable. The posterior fragment was elevated considerably above the level of the anterior fragment.

I applied a four-tailed bandage, and was able to bring the anterior fragment nearly in line. No splints were placed between the

teeth. I have never seen him since. I have, however, thought the case worthy of record, as illustrating how the patient himself may fail to discover, for many days, a fracture of his own jaw. The same thing occurred in Cases 10 and 18.

CASE 17. *Comminuted fracture. Union with deformity.*

John McNally, aged twenty-three years, a sailor, was struck on the right side of his face by a block, breaking the inferior maxilla upon the same side in two places. One fracture was through the ascending ramus, and just above the angle; the other was obliquely downwards and forwards through the shaft of the bone, and near the symphysis. No teeth were displaced. The intercepted fragment was forced inwards and downwards.

On the second day after the accident, Dr. Charles Wilcox, one of the Buffalo marine surgeons, took charge of the patient, and on the fourth day Dr. Wilcox invited me to present the case before my pupils. It was then dressed with a well-made gutta percha splint, secured with appropriate bandages to the chin and face. The teeth were all perfect, and the jaws were closed upon each other without any interdental splint, as it was found that he could still draw nourishment between his teeth. The fragments were in place.

The bone united in about three weeks, but he left the hospital and removed the dressings without authority, at the end of the second week. The intercepted fragment is displaced downwards and inwards, in the same direction in which it was when he first applied for treatment.

CASE 18. *Simple fracture. Delayed union.*

Daniel Moriarty, of Chicago, aged twenty-five years. Daniel was kicked by a fellow-countryman, on the left side of his face, breaking the lower jaw on that side just at the angle. The fracture was oblique. No teeth were displaced. The face immediately became much swollen, and he did not suspect the existence of a fracture. Two months after the accident he called upon me for advice. The left side of his face still remained much swollen, and motion between the fragments was very perceptible, especially in opening and shutting his jaw. The anterior fragment was carried to the left about one-quarter of an inch.

The failure to unite was probably due to the condition of his system, rather than to the neglect of surgical treatment. He was pale and feeble, having had intermittent fever more or less for nine

months. It is possible, however, that a small fragment remains loose at the point of fracture, and that this has, in some measure, caused the delay and swelling.

At my instance, he soon after placed himself under the care of Dr. Rano, of Pembroke, N. Y. Dr. R. extracted the last molar, and evacuated considerable pus. He has also taken measures at once to improve his general health. At the end of seventy days from the time of fracture, Dr. Rano informs me that it has not united.

Maxilla Inferior.

No.	Age when it occurred.	Time since it occurred.	Sex.	Simple, compound, comminuted, or complicated.	Transverse or oblique.	Point of fracture.	TREATMENT.	RESULT.			
								United or not.	When united.		Perfect or imperfect.
1	24 y'rs	3 y'rs	M.	Commin.	Oblique	Angle and shaft	Copper splints to outside. No interdental splints	United	5 w'ks	No deformity	Per.
2	15 "	6 "	"	"	"	Shaft	Unknown	"	3 mo's	No deformity	"
3	25 "	4 w'ks	"	Comp. commin.	"	"	Pasteboard splint to outside, and interdental splints of cork	"	3 wk's	No deformity	"
4	40 "	4 y'rs	"	Simple	"	"	Carved wooden splint. No interdental splints	"		No deformity	"
5	55 "	17 d'ys	"	Comp. commin.	"	"	Pasteboard splint, and subsequently a leather apparatus. No interdental splints	"	17 d'ys	No deformity	"
6	17 "	1 y'r	"	Comp. commin.	Oblique and trans.	Shaft and symph.	Four-tailed bandage, and interdental splints of pine wood	"	6 w'ks	Slight deformity	Imp.
7	11 "	4 y'rs	"	Comp. commin.	Oblique and trans.	Shaft	Gutta percha splint on the outside, and the same as in interdental splint	"		No deformity	Per.
8		12 d'ys	"	Comp. commin. compl'd.	Oblique	"	No treatment	Non-united		Died on the 12th day	Imp.
9	39 "	7 w'ks	"	Simple	"	Angle	Four-tailed bandage	United		Excess of callus and slight deformity.	"
10	26 "	4 "	"	Commin.	"	Angle and shaft	No treatment for 17 days. After this a gutta percha splint outside, and the same between the teeth	Delayed		Probably deformed	"
11	26 "	4 mo's	"	Simple	"	Shaft	For a few days with gutta percha splints within and without	United		No deformity	Per.
12	22 "	3 w'ks	"	"		Angle	Treatment unknown	"	3 w'ks	No deformity	"
13	12 "	25 y'rs	"			"	Treatment unknown	"		No deformity	"
14	25 "	10 "	"	Comp. commin.	Trans.	Symph.	Pasteboard splint on outside. No interdental splints	"	7 w'ks	Slight deformity	Imp.
15	4 "		"	Commin.	Oblique	Shaft	Gutta percha splints within and without	"	6 w'ks	No deformity	Per.
16	43 "		"	Simple	"	"	No surgeon, and no treatment under 14 days				
17	23 "		"	Commin.	"	Shaft and symph.	Gutta percha splint on outside. No interdental splint	"	3 w'ks	Slight deformity	Imp.
18	25 "	2 mo's	"	Simple	"	Angle	No treatment under 70 days	Non-united	70 d'ys	Lateral displacement, ulcers, &c.	"

REMARKS.

"La reduction assez facile à opérer est souvent difficile à maintenir."—*Vidal (de Cassis).*

It is difficult, sometimes, and especially where the fracture is near the angle, to say whether it is oblique or transverse, but I have been unable to recognize a transverse fracture, except where, as in Cases 6, 14, and 17, the fracture was at the symphysis mentis. Of eighteen fractures, only three are recorded as quite or nearly transverse.

Fractures through the symphysis are rare, but it is quite common to find a fracture immediately in front of the angle, and at any point of the shaft between the anterior attachment of the masseter and the symphysis. I have seen no fracture of the coronoid process, and but one of a condyle.

In seven cases the bone was broken at two points, in one of which the two fractures were upon the same side. In one case the bone was broken at three points. Considerable fragments of the alveoli were detached in Cases 3, 5, and 14, and a fragment from the lower margin of the jaw in Case 7, but in neither instance was the effort to save the fragment successful.

It ought to be observed, also, that when the fracture has occurred at or near the angle, as in Cases 1, 9, and 18, and the second or third molars were disturbed, it has always become necessary eventually to remove them, and chiefly because they have interfered with the closure of the mouth.

In no instance has the bone finally refused to unite, although in a few instances it has been delayed, six, seven, ten, and even twelve or more weeks (Cases 15, 14, 2, and 18). I regard this fact as worthy of more especial attention, because of the extreme difficulty, if not actual impossibility, of preventing motion between the fragments, by any mode of dressing yet adopted. Any one who has observed attentively, must have seen, not only that his dressings are more often found disturbed and loosened, than in the case of almost any other fracture, unless it be the clavicle, and thus the fragments have been through all the treatment subjected to frequent changes of position, but, also, that even while the dressings remain snugly in place, the patient seldom is able to perform the necessary acts of deglutition, or to speak, even, without inflicting some motion upon the fragments.

Indeed, the rapidity with which this bone unites has, I think,

been observed by other surgeons, and I have myself noticed one instance, in an adult person, Case 5, in which the bone was immovable at the seat of fracture on the seventeenth day, and, perhaps, earlier. In other instances, the union has been speedily effected after the removal of all dressings.

It would be very unsafe from these few cases to deduce any conclusions as to the effect of slight motion in retarding the union of broken bones. Yet I shall take the liberty of referring to some remarks upon this subject, published by myself, in the *Buffalo Medical Journal*, vol. x. p. 142, in connection with an article entitled "New Mode of Treating Ununited Fractures of the Humerus."

The amount of deformity resulting, also, from these fractures is usually very trifling, whatever treatment has been adopted. Seven are marked imperfect, but one of these cases was complicated with other injuries of which the patient died in a few days, and one was a case of delayed union, at the time of writing this report. Only five of the united fractures are imperfect, and in none of these is the imperfection such as to be noticed in a casual examination of the face. The deformity which is usually found, is a slight irregularity of the teeth, produced, in most cases, by a falling of the anterior fragment, and in one case by a slight elevation of the anterior fragment. But even this does not always interfere with mastication, and would often pass unnoticed by the patient himself. It is probable, too, that time, and the constant use of the lower jaw in mastication, will gradually effect a marked improvement in the ability to bring the opposing teeth into contact. I think I have observed this in several instances.

Where the prognosis is so favorable we shall, perhaps, feel less necessity for suggesting any modifications or improvements in relation to the surgical treatment. We cannot refrain, however, from making a few practical hints.

It will be seen that the few cases in which attempts have been made to restore a dislocated tooth to its socket, or to retain it when much loosened, have generally proved abortive, and especially where the fracture is near the angle, and a molar has been disturbed. I believe it would be better practice always to remove this latter when it is much disturbed, and in cases where teeth farther forward are loosened, we might be somewhat less persevering in our efforts to retain them.

The same remark applies, also, to fragments of alveoli, which have been detached completely, and are held only by the soft tissues

about them. Complete exfoliation has sooner or later occurred, or the surgeon himself has found it at length necessary to remove them. (See Remarks on Fractures of the Upper Jaw.)

As to the employment of interdental splints, every one knows how inconvenient they are, both to the patient and to the surgeon, and I need not say that they ought to be dispensed with whenever it is possible to do so.

They are soon covered with an offensive sordes, and, as usually made, they irritate the mouth with their rough surfaces, and are constantly liable to displacement. Yet instances must occur in which these wedges are indispensable, and I wish to call your attention to the advantage which gutta percha possesses over every other material, in its adaptation to this purpose. I have already employed it in four instances, and I find no practical objections to its use.

The mode of preparing gutta percha, and of adapting it between the teeth is as follows: Dip a couple of pieces of the gum, of a proper size, into boiling water, and when they are sufficiently softened, mould them into wedge-shaped blocks, and, having wrapped each block with a piece of cotton cloth, carry them to their appropriate places between the back teeth. Immediately press up each horizontal ramus of the jaw until the mouth is sufficiently closed, and the line of the inferior margin is straight. In this position retain the fragments a few minutes, until the gum has sufficiently hardened. Meantime, it will be practicable, generally, to introduce the fingers into the mouth, and to press the gutta percha laterally on each side towards the teeth, and thus to make its position more secure. When it is sufficiently hardened, remove the splints for the purpose of determining more precisely that they are properly shaped and fitted.

The superiority of this splint is now at once perceived. If properly made, it is smooth upon its surface, and not, therefore, so liable to irritate the mouth as wood or cork, and it is so moulded to the teeth that it will never become displaced. My friend, Dr. Ganson, of Batavia, believes that the gutta percha will itself irritate the mucous membrane, and he, therefore, removed the splints which I had inserted in Case 11. I think he is probably correct, although I have never observed this effect myself. But in Case 11 the gutta percha was not covered with cloth, a precaution which I have since always adopted, and which I desire to recommend.

I have found the same material, also, particularly convenient as

an outside splint, since it is so easily moulded to the face, and its form may be readily changed from time to time as the swelling increases or subsides. In compound fractures, also, where the wound is external, an opening can be made through the splint suitable for the dressing of the wound, and the discharge of pus. The piece from which this splint is made should be two or three lines in thickness, covered with cloth, and padded under the chin. It will be found convenient to cover it with cloth before immersing it in the hot water. The water should be nearly at a boiling temperature, so that the splint may become perfectly pliant; and it should be laid upon the face and allowed to mould itself while the patient lies upon his back.

Having long experienced the insufficiency of the ordinary dressings to resist the tendency in the anterior fragment to fall downwards and backwards, when oblique fractures exist upon both sides, I devised some years since a leather dressing, which may be found useful hereafter in some cases.

It is composed of a firm leather strap, called maxillary, which, passing perpendicularly upwards from under the chin, is made to buckle upon the top of the head, at a point near the situation of the anterior fontanelle. This strap is supported by two counter straps, called, respectively, occipital and frontal, made of strong linen webbing. One of these, the occipital, is attached to the posterior margin of the maxillary strap about half an inch above the ear, and being carried around behind and *under* the occiput, it is finally buckled to the maxillary strap upon the opposite side, and at a point exactly corresponding to its origin. The frontal stay simply antagonizes the occipital; and having its origin and termination at the anterior margins of the maxillary strap, it is buckled horizontally across the forehead, and just above the eyebrows.

The maxillary strap is narrow under the chin to avoid pressure upon the front of the neck, but immediately becomes wider so as to cover the sides of the inferior maxilla and face, after which it gradually diminishes to accommodate the buckle upon the top of the head. The anterior margin of this band, at the point corresponding to the symphysis mentis, and for about two inches on each side, is supplied with thread holes, for the purpose of attaching a piece of linen which, when the apparatus is in place, shall cross in front of the chin, and prevent the maxillary strap from sliding backwards against the front of the neck. (Fig. 1.)

The advantage of this dressing over any which I have yet seen, consists in its capability to lift the anterior fragment almost verti-

Fig. 1.

The Author's Apparatus.

cally, and at the same time it is in no danger of falling forwards and downwards upon the forehead. If, as in the case of most other dressings, the occipital stay had its attachment opposite to the chin, its effect would be to draw the central fragment backwards. By using a firm piece of leather as a maxillary band, and attaching the occipital stay above the ears, this difficulty is completely avoided.

NOTE.—At my request, Dr. Mütter, of Philadelphia, has furnished me with the following engraving of an instrument recommended and occasionally used by him in the treatment of such fractures of the inferior maxilla as are not easily retained in place by the usual apparatus. The instrument is a silver clamp, and it is intended to be placed over the teeth and alveoli in such a way as to traverse the seat of fracture. It is more simple than the apparatus of Lonsdale, while the principle upon which it acts is nearly the same. (Fig. 2.)

Fig. 2.

Mütter's Clamp for Fractured Jaw.

CHAPTER V.

CLAVICLE.

SEC. I.—INCOMPLETE FRACTURES.

CASE 1. *Partial fracture through the middle third. Result perfect.*

M. K., aged four years, fell down a flight of stone steps. Dr. G. Burwell and myself being called, found the right clavicle bent forwards at the outer end of the middle third.

We immediately applied Fox's apparatus.

Twenty-six days after the accident we examined the clavicle, and ascertained that the cure was completed, and without any deformity. During most of this time, however, the dressings were quite loose.

Eight years later I examined the arm, and there remained nothing to indicate the place where it had been broken.

CASE 2. *Fracture through the inner third. Result imperfect.*

Miss McN., aged nineteen years, broke her left collar-bone, by coming in contact with a bridge while riding on the Erie Canal. The fracture occurred at the outer end of the inner third. I saw her the day following. The fragments were not completely separated from each other, but bent forwards at the point of injury.

By pressure, I attempted to restore the ends to place, but with only partial success. I dressed the arm with Fox's apparatus.

Ten years afterwards, I find the bone still bent forwards at the point of fracture. The arm is often painful, and the clavicle is tender where the bend occurred. In other respects it is as sound as it was before.

CASE 3. *Fracture through the middle. Result not perfect.*

A. B., aged three years, fell from the sofa on to the floor, striking, it is thought, on her right shoulder. Two days after this she fell again, and then, for the first time, Mr. B. noticed the deformity of the clavicle.

She was brought to me three days after the second fall. There

existed then a round, smooth projection at the outer end of the middle third of the clavicle. It felt hard, like bone. The line of the clavicle was not changed. I think, however, there existed a partial fracture, or that the bone having been bent, had at once resumed its original place spontaneously, and that the projection consisted of provisional callus.

I advised a handkerchief sling, simply to steady and support the arm.

Seven months after the accident, she fell sick and died. The projection continued at the time of death, only slightly diminished.

CASE 4. *Fracture through the middle. Result perfect.*

H. S., aged six years, was thrown from a horse, bending his left clavicle near its middle. Surgeon, Alden S. Sprague, of Buffalo. The projection in front was for several days very apparent, and was examined by myself at Dr. Sprague's request. The bone did not seem to be out of line. Dr. Sprague used no dressing. Five years after the accident, at the date of this report, I have examined the lad, and cannot find any trace of the original injury.

CASE 5. *Fracture through the middle third. Result perfect.*

Robert M. Frazer, aged twelve years, was run against by a wagon, breaking or bending both clavicles at about their centres. Dr. Wyckoff examined the fractures, and directed a simple sling, with cool lotions. He had previously attempted to straighten the bones, but was unable to do so completely.

On the second or third day, Dr. Wyckoff sent the lad to the college dispensary. I was unable, also, to restore the bones, and I recommended a continuance of the same simple plan. He was advised, however, to lie a few days upon his back. Six years after the accident, Dr. Mendenhall, of Cincinnati, examined the clavicles at my request, and informs me that no traces of the accident can be found. The projections remained some time, but just how long the mother does not remember.

I assume that this was a case of bending, in which the bones immediately resumed their places, and that what we supposed to be a projection of the fragment was provisional callus.

CASE 6. *Fracture through the middle third. Result perfect.*

Robert M. Frazer. (Same as Case 5; opposite arm.)

CASE 7. *Fracture through the middle third. Result perfect.*

T. D. S., aged two years, fell and broke or bent his collar-bone near its middle. Dr. H. O. Harmon, of Montpelier, Vt., dressed the arm.

Twenty-four years after the accident no traces of the accident can be discovered. The arm is perfect.

CASE 8. *Fracture through the middle third. Result perfect.*

E. M., aged fourteen years.

After thirty-one years I find it perfect, but Mr. M. says that a projection existed at the seat of the fracture about five years.

CASE 9. *Fracture through the middle third. Result nearly perfect.*

Samuel Chapin, aged five years, fell down a flight of steps and broke his clavicle, at the outer end of the middle third. The fracture was rather more complete than interstitial fractures are usually, the deformity being very manifest, and the projection quite angular and slightly movable.

Assisted by Dr. Barnes, I dressed the fracture carefully with Fox's apparatus, but we could not completely restore the fragments to place, neither at this nor at the subsequent dressings.

The fragments became firm in about twenty days, but a slight deformity remained at the seat of fracture.

CASE 10. *Fracture through the middle third. Result nearly perfect.*

(This fracture occurred in the same person as Case 19, but was not discovered until the twenty-fourth day. No treatment was, therefore, adopted, except so far as the treatment of the fracture in the opposite arm might influence this.)

Wm. Hefferman, aged fourteen years. Fracture of the right clavicle, at the outer end of the middle third. No displacement, and only a slight bend. On the twenty-fourth day this bend was accidentally discovered, surrounded with a distinct and perfect provisional callus. The bone was at this time so firm that it could not be bent by any moderate force applied at its two extremities.

CASE 11. *Fracture through the middle third, resulting in a slight deformity.*

E. A. W., aged twenty-three months. This child fell from her bed, a height of about two feet. The parents did not discover that any injury had been done to the collar-bone until about five days

after the accident. Dr. George Burwell was then requested to see it, and found the same deformity existing as at present, and pronounced it a fracture. On the fourteenth day, at the instance of Dr. Burwell, the child was brought to me. The right clavicle was bent abruptly forwards, at about its middle. The projection was no greater now than on the fifth day, when it was first discovered. She used her arm freely.

We immediately made an attempt to straighten the bone by pressing upon the projecting angle, while, at the same moment, the scapula was drawn forwards. The efforts were repeated, and at each time the pressure made was firm, steady, and long continued. We could, however, produce no change in the form of the bone, and our efforts were discontinued.

No dressings had been previously applied, and I did not advise their application now.

After three years, I have again examined the bone, and find the projection has become smaller, but it is still quite manifest. The functions of the arm are in no ways impaired.

CASE 12. *Fracture through the middle third. Result imperfect.* (See cast in my private collection.)

B., aged seven years, of Rochester, fell and bent her right collarbone, near its middle. Her parents did not discover the accident until after three weeks, when they immediately brought her to me. The bone was then firm, and by no reasonable pressure could it be made to yield; it was slightly bent forwards at the seat of fracture, and in this condition we were obliged to leave it. I advised no treatment.

CASE 13. *Fracture through the middle third. Result imperfect.* (See cast in my private collection.)

The cast of this case was furnished to me by Dr. Caleb Green, of Homer, N. Y., the very intelligent surgeon who treated the fracture, and I shall take the liberty of quoting his own account of it.

"Dec. 21, 1847, I was called to dress what was considered to be a fractured clavicle, of George Stone, a lad eight years of age. One of his playmates had tripped him in such a manner that he fell on his side, striking on the extremity of the left shoulder. I found that he was unable to raise the hand to the head. On examination, I discovered on the posterior edge of the clavicle, at the inner extremity of the external curvature, a point which was swollen, tender,

and painful. The anterior edge of the clavicle was continuous, and there was neither crepitus nor displacement. Considering the age of the patient, and the appearance of the parts, I diagnosed bending of the clavicle forward with a *splitting out* of the posterior edge, and that the bone, by its elasticity, had resumed its ordinary direction. In order to be safe, however, I dressed the shoulder as for actual fracture of the clavicle, lest the fracture *might* have extended nearly through the bone, and there be subsequent displacement. The swelling subsided in four or five days, and as all seemed secure, I removed the dressings, and heard no more of the matter until the 11th of May, ult., when I was called to see the patient again, and found that he had met, the day before, with precisely the same accident, at the old point, and by the same cause, being tripped down by a playmate. This time the swelling and other symptoms of inflammation were greater than before. The anterior edge of the clavicle was entirely continuous, but he could not raise the arm. I merely directed him to keep to his bed until the swelling and inflammation should in a measure subside. In three or four days he was about. The callus left is not large, still it is quite evident. I have had one well-marked case of bending of the radius and ulna, in a boy eight years of age, and other surgeons have detailed similar accidents to the forearm, and, more rarely, cases of incomplete fracture, with bending of the humerus, leg, and thigh; but as a like bending of the clavicle is much less common than either of the others, I have thought this case possessed sufficient interest to make it worthy of being reported.

CASE 14. *Fracture through the middle third. Result perfect.*

W. P. L., aged thirteen years. The fracture occurred at the outer end of the middle third. Dr. John Thompson, of Scipio, Cayuga Co., N. Y., was employed. Soon after the union had been completed, it was refractured by accident, and it was re-dressed by the same surgeon.

Of the treatment adopted in this case I have no information.

I examined the clavicle thirteen years after the accident, and no trace of the original fracture could be seen.

I believe it proper to assume that this was a partial fracture.

The following case I have thought was of sufficient interest to authorize its introduction at this place, but as some doubt may

exist as to the character of the fracture, I shall not include it in my tables.

Fracture through the middle third. Union with great deformity. (Specimen found in dissecting-room. See cast in my private collection representing the thorax before the bone was removed, and, also, cast representing the bone after it was removed.)

The deformity, as seen before the integuments were removed, was very remarkable—the left clavicle being bent downwards and forwards at a point just two inches and a half from the sternum, and deviating from its proper line about one inch. The patient was an adult.

The bone, on examination, was found firmly united at the point of fracture, but expanded into a sort of round knob, smooth and uniform upon its surface.

I suspect that this fracture occurred in early life, as it was transverse, and its knob-like projection resembled that which is so commonly found to exist for a long time upon any fractures or bendings of the bones in children. The nodose swelling, also, at the seat of fracture, was formed entirely at the expense of the anterior and superior surfaces of the clavicle. Posteriorly and inferiorly, the surface of the bone was only slightly, if at all elevated, and I presume this side of the bone was never completely broken.

It would have been impossible for the ends of a complete fracture of the clavicle, such as occur in adult persons, to have been retained in apposition until union was effected, while at the same time the fragments were so much out of line.

SEC. II.—COMPLETE FRACTURES.

DIVIS. 1.—*Middle Third.*

CASE 15. *Simple oblique fracture. Union with deformity.*

G. W. R., of Lockport, aged about fifty years. While residing temporarily in Buffalo, he fell and broke his left clavicle at the outer end of the middle third. Fracture simple and oblique. Dr. Barnes and myself were employed as his surgical attendants. We found the sternal fragment projecting and overriding the acromial fragment. Before applying any dressings, we attempted to reduce the fragments, so as to determine its practicability, but we did not succeed. Having assured Mr. R. that an overriding would be the result, we applied Fox's apparatus. After the application of the

dressings, reduction still remained impossible. We observed, also, that whether the dressings were applied snugly or loosely, the fragments constantly moved upon each other, whenever he turned his neck or changed the position of the opposite arm.

On the eighth day, the callus around the fragments was very abundant.

On the twenty-first day, motion at the seat of fracture had nearly ceased, and at the end of four weeks the union was completed, but with the usual deformity.

Having been advised, subsequently, by a surgeon, that such a result was unnecessary, and that it implied unskilfulness or neglect on my part, he talked of withholding payment for my services, and this notwithstanding he had been from the first fully warned of the certainty of such a result. Until surgeons learn by their own experience, or from the testimony of others, what may be accomplished after these accidents, they will, no doubt, continue to regard such results as were obtained in this case, as evidence of wrong practice.

CASE 16. *Simple oblique fracture, and union with deformity.* (See cast in my private collection.)

Hugh Sarsfield, aged fifty-seven years; an Irish laborer; fell upon the outside of the left shoulder, breaking his left clavicle. Fracture at the outer end of the middle third. Simple and oblique.

I immediately applied a figure of 8 bandage, with a sling and axillary pad. The fragments were brought nearly to their proper places.

On the two following days the bandages were found slightly loosened, and the fragments displaced.

On the third day I applied a dressing after the method described and recommended by M. Velpeau,* except that I employed flour paste instead of dextrine. The dressing was very carefully laid on, and when completed the fragments were in place, and the patient expressed himself as being quite comfortable.

On the following day he complained greatly of its tightness. On the third day after its application, I found he had himself cut away the principal parts of the bandages, and that the fragments were again displaced. I therefore removed them entirely, and substituted the figure of 8.

* Nouveau Eléments de Médecine Opératoire. Par A. L. M. Velpeau, à Paris, 1839, tom. i. p. 229.

The result has been that the bone has united, shortened about three-quarters of an inch, but the arm is as strong and as useful as before the accident.

CASE 17. *Simple oblique fracture, and union with deformity.*

Baby Golden Condy (female), Irish, aged forty years. By a fall she broke her right clavicle at the junction of the outer with the middle third. Fracture simple and oblique.

On the following day I dressed the fracture with a sling, axillary pad, and bandages. These were removed on the fourth week, when the bone was found united and shortened half an inch.

CASE 18. *Simple oblique fracture, and union with deformity.*

H. M., of Angelica, aged about thirty-five years. Fracture at the outer end of the middle third; oblique, occasioned by the kick of a horse.

Five days after the accident, Drs. Charles and Smith, of Angelica, both men of excellent reputation as surgeons, dressed the fracture with the eleven yard bandage of S. Brown, and with a pad in the axilla.

On the eleventh day from the accident, and six days after the first dressing, Mr. M. himself directed the bandages to be removed. It was done without the knowledge of his surgeons, because, he said, he could not endure the pain. The pain was chiefly on the outside of his humerus, near its middle.

Dr. Charles reapplied the same dressings, but with a smaller axillary pad.

About the twenty-third day, Mr. M. again removed the whole of the dressings, and from this time forward the bandages were several times applied, and as often removed, after a short time, by the patient.

Four months from the date of the fracture, Mr. M. consulted me.

The bone had then united, and with the usual deformity. It was shortened three-quarters of an inch. He could, at this time, raise his arm but slightly from the side of his body.

CASE 19. *Simple oblique fracture, and union with slight deformity.*

Wm. Heffeman, aged fourteen years, was admitted into the hospital with a fracture of the left clavicle, having been run over by a horse and buggy. Fracture at the outer end of the middle third; simple and oblique, with the usual overlappings. He could raise

his arm perpendicularly over his head, as easily as before the accident.

I replaced the fractured ends, and then dressed with a sling under the forearm and elbow, and a well-padded board across the back, to which the shoulders were securely laced. The retention of the fragments was complete.

On each successive day, however, I found the board displaced more or less to the right or left shoulder, and during most of the time the dressings were completely inoperative. Still they were continued with occasional slight modifications, until the cure was consummated.

On the thirteenth day I noticed callus upon the upper margins of the broken ends, but none in front or below. The same was noticed, also, on the twenty-first day, but it was less in amount.

The union was complete about the twentieth day, as motion was perceptible on the eighteenth, and it was lost on the twenty-first. It united with a slight overlapping and projection.

CASE 20. *Simple oblique fracture, and union with deformity.*

Almond D. Loomis, aged twenty-three years, fell, while wrestling, upon his left shoulder, breaking the left clavicle at the outer end of the middle third. Fracture simple and oblique, with the usual displacement. It was shortened one inch.

Assisted by Drs. Thompson and Hunt, I applied a sling with an axillary pad, &c. &c., but we could not retain the fragments in place. We then covered the elevated fragment with long and broad strips of adhesive plaster, which, for a time, brought the bone to its place.

I never saw the patient again, but I have been told that it finally united with the usual deformity.

CASE 21. *Simple oblique fracture, and ligamentous union.*

Edmund Nugent, aged twenty-five years, was admitted to the hospital in March, 1854. The house surgeon called my attention to his clavicle, and in presence of Drs. Winnie, Rochester, and Davis, I made the following examination and notes:—

Nugent is a stout Irish laborer. Sixteen years ago, when only nine years old, he fell from a horse and broke his left clavicle, at the outer end of the middle third. This was near Cork, in Ireland, and without consulting any surgeon or "handy man," he continued at his work, holding the tail of the plough, nor from that day for-

ward did he employ a surgeon, or dress his arm, or cease from his work.

The clavicle presents now the same deformity which nearly all other similar fractures present after what is usually termed successful treatment, except that it is not united by bone. The outer end of the inner fragment rides upon the inner end of the outer fragment half an inch. The ligament uniting the two extremities is so long and firm that it can be distinctly felt, and the fragments may be moved upon each other with great freedom.

In order that we might determine the amount of injury which he had suffered from the ligamentous union, we directed him to lift weights placed on a table before him, while he was seated upon a chair. We ascertained from this experiment that with his left arm he could lift as much, within three ounces, as he could with his right, and he was not himself conscious of any difference. The muscles of the left arm seemed as well developed as those of the right.

CASE 22. *Simple oblique fracture, and union with slight deformity.*

Mary Beaumont, aged seventeen years, broke her left clavicle at the outer end of the middle third. Dr. Brodie, of Caven, C. W., treated the fracture.

Nine years after the accident she became an inmate of the Buffalo Hospital, and was under my care.

The outer end of the inner fragment is displaced upwards about half an inch. There is no shortening. The functions of the arm are perfect.

CASE 23. *Simple oblique fracture, and union with deformity.*

H. B. H., of Gaines, Orleans Co., aged forty-four years, a carriage maker by trade. Health generally pretty good, yet not very vigorous. Mr. H. fell down a flight of steps, about four feet, striking upon his right shoulder, and fracturing his right clavicle at the outer end of the middle third. He was not stunned by the fall, and his right shoulder and side were only slightly bruised.

Dr. Alfred Babcock, of Orleans Co., was employed. He applied a jacket (Brasdor's) with shoulder-straps, and a sling; no axillary pad. The jacket had no purpose except to attach the shoulder-straps, which were buckled over each shoulder. That on the right side was intended to keep down the inner fragment; and it was therefore buckled so tight that he was compelled constantly to in-

cline his head and body to the right side. He was unable to lie down completely, but, most of the time, he half reclined upon his back.

On the twenty-first day, Dr. Babcock removed the dressings, and found the fragments displaced, but united. Dr. B. offered to "break it over again," but the patient declined. The same dressings were reapplied, and continued one week longer.

Two years after the accident, Mr. H. consulted me at Buffalo. The place of union of the broken clavicle was very perceptible; the inner fragment lying entirely in front, and not at all above the outer fragment. It is shortened three-quarters of an inch. A narrow ring of ensheathing callus can be distinctly felt.

Three months after the accident, and about two months after the dressings were removed, the upper dorsal vertebræ began to fall off to the left side. Soon, his left hand became tremulous and weak, and now his left arm and hand are completely paralytic, and his left leg is also partially paralyzed. Sensation remains undiminished. His spine is also very much curved to the left. The right arm is sound, and its strength is in no degree abated. His health is somewhat impaired.

It is not clear what has occasioned the spinal distortion and the paralysis, but I suspect it is due to some injury done to the vertebral column at the time of the accident, although he is not conscious of having received any such injury.

To charge these results to the peculiar mode of dressing the fracture, the facts and circumstances will scarcely warrant.

CASE 24. *Simple oblique fracture, and union with deformity.*

Daniel Sullivan, of Buffalo, aged fourteen years, fell from a scaffolding, striking upon the back of the left shoulder, and breaking the left clavicle at the outer end of the middle third. I first applied Day's splint, and, subsequently, Fox's apparatus, but I soon found that the fragments were only temporarily kept in place by either of these dressings; yet with various modifications, and frequent readjustments, Fox's apparatus was continued throughout the treatment. On the eleventh day the fragments were immovable, and no provisional callus could be felt. The boy was a restless, active fellow, and was incessantly going about.

It has united with the inner fragment riding upon the outer one a quarter of an inch. Three months after the union was effected, the arm was as useful as before. The dressings remained on the arm

about thirty days. As is usual with good-natured people, the mother ascribes the deformity to his own carelessness; she says, "he had the dressings loose nearly all the time."

CASE 25. *Simple oblique fracture, and union with deformity.*

M. W., of Angelica, aged twenty-two years, was thrown from a carriage, breaking her right collar-bone. Fracture oblique, at the outer end of the middle third.

Dr. Haines, of Portage, dressed the fracture immediately, and I met him in counsel on the third day after the accident. The inner fragment was then riding upon the outer in the usual manner. Dr. Haines had attempted repeatedly to restore the fragments to an exact apposition, but he had been wholly unable to do so; nor did we succeed any better after my arrival. We were unable, even for one moment, to bring them into place.

We applied Fox's apparatus moderately tight, and I left the case in the hands of Dr. Haines, with an assurance that overlapping and some deformity must be the result; and I have since learned that such was the fact. It is shortened about half an inch.

CASE 26. *Simple oblique fracture—union not perfect.*

James Elwood, of Rochester, aged thirty-five years. Fracture occurred at the outer end of the middle third: right clavicle. Dr. ——, of Rochester, in attendance.

Five years after the accident, I found the clavicle shortened half an inch, and slightly deformed at the seat of fracture. The right shoulder falls about half an inch; his arm is, however, in all respects as well and as useful as before. It was dressed, he says, by a surgeon in Rochester, but he cannot give the name of the surgeon, nor have I any notes of the mode of treatment.

CASE 27. *Simple oblique fracture, and union with deformity.*

Hiram Gaylor, aged thirty-three years, broke one of his collar-bones at the outer end of the middle third. Dr. Stanberg, of Palentine, Montgomery Co., was in attendance.

Fourteen years after the accident, I found the usual displacement at the seat of fracture, with a shortening of half an inch. The arm has been occasionally painful from that time to the present. Its functions were, however, unimpaired. My notes do not declare the mode of treatment.

CASE 28. *Simple oblique fracture, and union with deformity.*

Mrs. T. M., aged thirty years, was thrown from a carriage, striking upon the outer end of the left acromion process. The left clavicle was broken at the outer end of the middle third, or about two and a half inches from the acromion process.

The outer end of the inner fragment was lifted upwards and forwards, and made to override, very slightly, the acromial fragment. By pressure alone it was easily replaced.

Assisted by my son, Theodore, I adjusted the fragments, and secured the arm with a sling, axillary pad, and bandages.

On the third day, I found the dressings loose, and the fragments displaced, although the usual care had been taken to prevent this result. I removed, therefore, the dressings, and substituted a carefully made Fox's apparatus.

On the seventh day, the patient having been seen by me, and the dressings tightened on each intervening day, I removed the apparatus, finding that it had no influence in retaining the fragments in place, and I substituted a dressing made entirely of adhesive plasters. For this purpose I used, at this single dressing, about two yards of plaster, made into strips of from three to four feet in length by one or two inches in breadth. A pad was placed in the axilla, and the arm and shoulder were then secured by various turns of the adhesive strips, some of which served as a sling for the elbow, some bound the elbow to the body, some drew back the shoulders, and some crossed the broken clavicle to bear down the outer end of the sternal fragment. When the whole was finished, the patient expressed herself as very comfortable, and the fractured ends were in place. The next day, the straps had slipped and loosened, and the fracture was again deranged.

On the thirteenth day, I becamed satisfied that no amount of care and diligence, short of a reapplication of them every few hours, was sufficient to prevent the straps from becoming loose, a circumstance mainly due to the warmth of the body, and to the motions of respiration. I therefore removed the straps, and applied the very beautiful and ingenious splint for fractured clavicles, invented by Mr. Day. This is a carved splint, made to fit the back, shoulders, and neck, and furnished with sling, straps, loops, etc. Before applying this splint, I had a large and soft cushion constructed and placed on the concave surface of the splint. Its application was easy and simple, and promised to be efficient.

The patient wore this apparatus five days, during which time it

required daily, indeed almost hourly, readjustment, as the splint would constantly slide upwards against the neck and head, and the shoulder-straps would roll and excoriate the axilla. To remedy the latter difficulty, I had large circular tin plates constructed, furnished with pads, which were placed in front of the axilla, and over which the shoulder-straps were made to pass. The sliding upwards of the splint, however, still continued, and was irremediable; and, on about the twenty-first day, this also was removed, and no dressings were subsequently employed, except a sling for the forearm. At this time no union had occurred. No provisional callus could be felt; the fragments remained slightly displaced, just as when I first saw her. In short, the treatment had accomplished nothing.

Soon after union occurred, and, two months from the time of the fracture, I found the bone firm, with an overlapping of three-quarters of an inch. The functions of the arm were also already completely restored. At the end of one year, no changes have occurred.

CASE 29. *Simple oblique fracture, and union with deformity.*

John Moran, a sailor, aged twenty years, fell upon his left shoulder, and broke the left clavicle at the outer end of the middle third.

At the end of fourteen days, he consulted Dr. Charles Wilcox, Surgeon to the Marine Hospital at Buffalo. This was his first application for surgical advice. Dr. Wilcox applied the figure of 8 dressing; on the following day, it had become loosened and drawn into strings, and, on the third day, John removed it altogether, and has had no treatment or dressing since, except that he has generally kept his hand in the bosom of his coat.

The bone united in about twenty-one days, and, at the end of six weeks, when I examined it carefully, the clavicle was shortened one-quarter of an inch; provisional callus could be detected. The arm was as strong and as useful as before.

CASE 30. *Simple oblique fracture, and union with deformity.*

Daniel Sharp, æt. 16 years, broke his right clavicle, at the outer end of the middle third. A surgeon of respectability in New York city dressed and treated the fracture.

Seventeen years after the accident, I examined the arm, and found a projection and overlapping of the fragments, to the extent of three-quarters of an inch. Its displacement upwards was rather greater than is ordinarily seen, yet the arm was as strong and as useful as before. Patient cannot describe the treatment.

CASE 31. *Simple oblique fracture, and union with deformity.*

Henry West, aged 25 years, broke his left clavicle at the outer end of the middle third. Surgeon Williams, of Liverpool, England, dressed the fracture, and continued his charge until the cure was completed.

Two years after the fracture had occurred, West came under my care at the hospital. The clavicle is shortened one-quarter of an inch, and a slight deformity remains at the seat of fracture. The functions of his arm are perfect. I have no knowledge of the treatment.

CASE 32. *Simple oblique fracture, and union with deformity.*

James Roach, aged about 40 years. A barrel of flour fell against his left shoulder, breaking the left clavicle at the outer end of the middle third: oblique and simple. The fragments were displaced in the usual manner.

Assisted by Drs. Eastman and Vanderventer, I applied dressings consisting of a sling, axillary pad, and bandages. Over each shoulder I placed a moulded compress, made of numerous layers of cloth and paste; this, when dry, was to serve as a *point d'appui* for bandages, tapes, &c.

The whole being arranged, we made an attempt to reduce the fragments, but we were unsuccessful.

The same thing happened, indeed, which has several times happened to me before. I could not, nor could the gentlemen with me bring the fragments into apposition, and this notwithstanding we placed our knees against the back, and drew forcibly upon the shoulders; and notwithstanding also we placed a firm pad in the axilla, and made use of the arm as a lever until the patient could no longer endure the pain. Each gentleman satisfied himself that it was not practicable to reduce the fragments by either of these modes, and on the following day Dr. Myers, of the U. S. Army, and Dr. Pupikofer repeated the attempt in my presence, and with like success.

In one way alone could the fragments be brought even temporarily into contact, viz: by pressing the acromial end of the sternal fragment downwards and backwards, which fragment we found, when left to itself, constantly projecting upwards and forwards, while the opposing fragment was inclined, at its sternal end, backwards.

The patient was assured that overlapping was inevitable; the

dressings were carefully applied, and, with slight modifications, were continued until the cure was completed.

The fragments united about the thirtieth day, with half an inch of shortening, and with projection of the outer end of the inner fragment.

CASE 33. *Simple transverse fracture, and union without deformity.*

Patrick Rowan, aged 26 years, fell while wrestling, and broke the right clavicle at the outer end of the middle third. The fracture was complete, but transverse.

I reduced the fragments soon after the accident, and noticed that unless disturbed, they would remain in place for a few seconds, at least.

I applied the cross described in Case 21; on the seventh day, motion between the fragments had ceased, and on the twenty-eighth day the apparatus was removed, and the union found to be complete without shortening or deformity.

CASE 34. *Simple oblique fracture, and union with deformity.*

S. E., of Buffalo, aged about 25 years. Mr. E. was thrown upon his shoulder, by jumping from the cars while they were in motion. The fracture was at the outer end of the middle third, simple and oblique.

During the first four days, I applied a figure of 8 bandage with an axillary pad and a sling. Finding, however, that the fragments could not by these means be kept in place, I directed our ingenious instrument maker, Mr. Seiffert, to construct, under my direction, an apparatus such as I hoped might prove more efficient in the management of these fractures. It consisted essentially of an upright and a transverse plate of brass, secured upon each other in the form of a cross, and intended to be placed against the back. The transverse bar extended from acromion to acromion, to which the shoulders were to be securely fastened back by leather shoulder caps and straps, with buckles. This bar was padded, especially along its middle, where it was intended to rest between the blades of the scapulæ. The vertical bar was only designed as a support for the crossbar, its lower end being received into a pocket made in a broad leather belt, the belt to be fastened around the hips.

This apparatus I applied on the fifth day, and I continued to see him daily until the cure was completed. Motion between the fragments had ceased on the fourteenth day after the accident, and

on the twenty-fifth day I removed the apparatus entirely, the bone being quite firm. There was, however, the usual overlapping and deformity at the seat of fracture, but rather less than occurs in a majority of cases.

I cannot say that the apparatus answered my expectations, since it was constantly inclined to fall off from the shoulders, either to the right or to the left, and this defect I have not yet succeeded in remedying.

CASE 35. *Simple oblique fracture, and union with deformity.*

Mrs. ——, of England, aged 28 years, fell and broke her left collar bone obliquely at the outer end of the middle third. A surgeon in London dressed the fracture.

Twelve years after the accident, I found the usual deformity and a shortening of half an inch; the arm in other respects, perfect. No record of treatment.

CASE 36. *Simple oblique fracture, and union with deformity.*

Mary McCarty, aged 12 years, of Ireland. Mary broke one of her collar bones, by a fall upon her shoulder. The fracture was complete, and occurred at the outer end of the middle third. She says that a skilful Swiss surgeon dressed the fracture. Twenty-three years after the accident, she became an inmate of the Buffalo Hospital, and I examined the arm.

The clavicle is shortened half an inch, and slightly bent at the seat of fracture. For many years, Mary says, the deformity was very striking. Functions of arm not impaired.

CASE 37. *Simple oblique fracture, and union with deformity.*

Silas Usher, aged 46 years, fell from a scaffolding about fifteen feet, striking upon his shoulder, and breaking the left clavicle, near the junction of the outer third with the inner two thirds. Dr. Peter Knox, of Watervleit, dressed the fracture immediately, with an axillary pad, sling and bandages. On the third day, the fragments were discovered to be displaced, and Dr. Thorn, of Troy, was summoned.

Dr. Thorn removed the dressings and substituted an apparatus composed of bandages, and without any axillary pad. He also placed an adhesive plaster over the fracture; on the tenth day Dr. Thorn removed all the dressings, and did not reapply them; but the plaster was continued until it fell off.

Eleven years after the fracture, I found the bone united, but overlapped one-quarter of an inch; the inner fragment overriding the outer, the functions of the arm perfect. He thinks it was united in about two weeks after it was broken.

CASE 38. *Simple transverse fracture, occurring at the seat of an old comminuted fracture. Union without additional deformity or maiming. Prosecution of the surgeon, and successful defence.* (See cast in my private collection.)

Burgess, aged about 30 years, of Buffalo, N. Y. (This is the same man whose first fracture is reported in Case 52.) Burgess was riding in a buggy, when the horse became frightened by the passage of a train of cars, and he was thrown upon the ground, striking upon his right shoulder.

Dr. George Burwell, an intelligent and skilful surgeon of Buffalo, was called to dress the fracture.

On the eighth day, Dr. Burwell requested me to see Burgess with him. I found him wearing Fox's apparatus, which had been carefully made and applied, but which was now loose from his own interference. The clavicle was broken at the seat of the old fracture, but only at one point—at the point nearest the shoulder. The vertical or intercepted fragment remained firmly fastened to the inner portion of the bone. Burgess had not told Dr. Burwell, nor did he tell me that the clavicle had ever been broken before, and we did not suspect the intended imposition. We were unable to explain satisfactorily the fixed and immovable condition of the central fragment, which we repeatedly attempted to restore to place. On attempting to adjust the portions which were movable, also, we found that no force applied to the shoulders was sufficient to make any sensible impression upon them. They still continued to occupy almost precisely the position in which we first found them. We assured him, therefore, that deformity was inevitable, and that we would apply the dressings only so as to maintain some degree of rest between the fragments, but that we should not attempt to overcome the shortening, &c. To this Burgess assented with a readiness which at that time surprised us, but which subsequent developments rendered consistent. We observed, also, the emaciated condition of the arm, and the deformity of his hand and wrist. These conditions he ascribed to a dislocation of the shoulder which, he said, occurred when he was twelve years old.

Dr. Burwell continued to attend him until the union of the bone was completed, about twenty-one days.

Soon after his recovery, Burgess commenced his well-planned and systematic conspiracy, by prosecuting the Niagara Falls Railroad Company, for having been the cause of his accident, and of all the deformity and maiming from which he was now suffering.

This suit resulted in a verdict in favor of the company.

A few months later, Burgess refused to pay his bill for surgical services, and threatened to prosecute Dr. Burwell for damages. Dr. Burwell immediately gave the account to his attorney for collection, and Burgess, through Mr. Williams, his counsel, put in a defence of "unskilful treatment." The cause was tried October 3d, 1846, in a Justice's Court, Justice Childs presiding, and when the testimony was partly before the magistrate, Burgess's counsel withdrew the defence, and Dr. Burwell's account was allowed. Burgess, however, had no property, and the judgment was never paid.

The matter did not rest here. He at once commenced a suit against Dr. Burwell for mal-practice. The first trial of this suit occurred in June of 1847, in the Erie County Circuit, Judge Stevens presiding.

The evidence was most conclusive in favor of Dr. Burwell, but the jury could not agree, and were dismissed. Eleven of the jurors wished to return a verdict for the defendant, Dr. Burwell, and one insisted upon damages to plaintiff.

The second trial occurred in June, 1849. The same facts were elicited here as on the two former trials, viz: That he had repeatedly falsified his own statements in relation to the cause of his maiming. That he had at one time ascribed it solely to an injury of the wrist, received when he was twelve years old; at another, to an old dislocation of the shoulder; at another, entirely to his recent accident. He never admitted, so far as we could learn, that the clavicle had ever been broken until recently, but it will be seen at once that, with the knowledge of his character and motives now disclosed, no other supposition is probable. The jury having heard the testimony, promptly returned a verdict for the defendant.

CASE 39. *Simple fracture, and union with very little deformity.*

Francis Carpenter, aged thirty-two years, of Lille, France. Francis fell sideways upon the ground, striking upon the outer end of his left shoulder, and breaking the left clavicle at the outer end of the middle third.

Dr. Barras, of Lille, dressed the fracture with bandages and a sling, using no axillary pad, and no band to draw the shoulders back. The dressings were continued eight weeks.

Ten years after, while an inmate of the Buffalo Hospital, I examined the arm. The clavicle had united without shortening, but only bent forwards at the seat of fracture. He thinks it never overlapped, nor was there ever any sharp projecting point of bone, the arm is as strong as before the accident. Probably it was a transverse fracture, and possibly not complete.

CASE 40. *Simple oblique fracture, and union with deformity.*

Joseph Price, aged about twenty years, broke his clavicle at the outer end of the middle third. Oblique and simple.

I applied Fox's apparatus, but did not see him but once or twice after the first dressing, as he soon left town. Two years from the date of the accident, I examined the arm again. The fragments had united, overlapped, and with the usual deformity. It is shortened half an inch. He is a good-natured fellow, and ascribes all the unfortunate result to his own negligence. His arm is not yet quite as strong as before the clavicle was broken.

CASE 41. *Simple and oblique fracture, and union with deformity.*

C. A. W., aged forty-seven years, was struck by the hawser of a vessel, breaking the right clavicle, and, at the same time, several ribs on the right side of his body. Dr. Sprague, a very experienced surgeon of Buffalo, was called, and applied dressings consisting essentially of a sling and axillary pad, bandages, &c. The condition of his side, however, did not permit the dressings to be applied very snugly.

Some person having suggested to Mr. W. that the arm was not properly in place, that the shoulder was out of joint! and the clavicle not united! he consulted me in June, 1851, about four years after the accident.

The fracture had occurred at the outer end of the middle third, and the inner fragment was still overriding the outer fragment. The clavicle was united, but shortened one inch. The projecting point of the inner fragment was quite sharp and prominent, and occasionally tender and painful. The right humerus is properly in its socket, but the muscles about the joint are atrophied, leaving a flatness upon the outside and behind. In front, there exists rather

an unusual fulness. He is unable to raise his arm to a right angle with his body.

CASE 42. *Simple oblique fracture. Union with deformity, and paralysis of the arm.*

Mrs. ——, aged 51 years, of New York. Mrs. —— was thrown from her carriage, breaking the right clavicle obliquely at the outer end of the middle third. Dr. Congar, of Niagara Falls, dressed the fracture with Fox's apparatus. This dressing was continued three weeks, and was not particularly painful.

At this time, by a change of residence, she became the patient of Dr. J., a very excellent surgeon of Erie County, N. Y. The fragments were found to be overlapped, and Dr. J., with a hope of restoring them to place, applied a figure of 8 bandage, with an axillary pad. During the short time these dressings were continued, the pain was excessive; and, notwithstanding the free use of anodynes, they became wholly insupportable, and were removed at the end of fourteen hours.

Dr. C., of the same county, removed the dressings, and reapplied Fox's apparatus, which, with occasional removals, remained on four weeks longer. In all this time, repeated efforts were made to bring the fragments into place.

Forty-eight days after the accident, she consulted me. The clavicle was then united, and overlapped half an inch. The whole arm was swollen, painful, and very tender, with total inability to move it.

I removed all the dressings, and, during the time she remained under my care, in a private room of the hospital, there was a gradual improvement in the condition of her arm, in respect of swelling and tenderness, but the paralysis did not much abate.

CASE 43. *Fracture and union, with slight deformity.*

Miss A. W. R., of Westfield, Chatauque County, aged 5 years, by a fall broke her right clavicle near its middle. Dr. Jones, of Westfield, dressed the fracture. It was found impossible to retain the fragments in place, although Dr. Jones readjusted them at three separate times. Union occurred, with a palpable deformity, which was still manifest thirty-five years after the accident, when I had an opportunity of examining the bone. The arm, also, during the whole of this period, has been occasionally painful. In all other respects it is well.

CASE 44. *Fracture and union, with deformity.*

John Lewis, of Painted Post, N. Y., aged 32 years, fractured his clavicle near its middle. Simple and oblique. Dr. Hoyt, of Painted Post, was employed.

Eight years after the fracture, I found the clavicle shortened one quarter of an inch, and pushed forward at the seat of fracture. The arm was not as strong as before the accident. I find no mention in my records of the treatment.

CASE 45. *Fracture and union, without deformity.*

S., aged 15 years, fell on the ice, breaking his left clavicle. The fragments were never much displaced. Dr. John Trowbridge, of Buffalo, and myself, in attendance.

We applied at first a back-board splint, which seemed to keep the fragments, for a day or two, very well in place; but, after this date, it was found too troublesome, and we substituted a simple sling.

Five years after the accident, I examined the arm carefully, and find it neither shortened nor displaced. Yet the line of fracture can be distinctly felt. It occurred at the outer end of the middle third, and was oblique.

DIVIS. 2.—*Inner Third.*

CASE 46. *Simple transverse fracture half an inch from sternum. Union without deformity.*

Mrs. Winfield Dunmoody, aged 80 years, fell down a flight of steps, breaking the right clavicle about one inch from its sternal end.

Dr. John Trowbridge, who was in attendance, invited me to see the case on the day following the accident. Motion and crepitus were distinct, but the displacement was very inconsiderable, and scarcely perceptible. We applied no dressings, but directed only that the patient should be kept quiet. The bone united in the usual time, and without either deformity or maiming.

DIVIS. 3.—*Outer Third.*

CASE 47. *Fracture between the coracoid process and acromion. Union, with slight deformity.*

J. H., aged about 21 years, in jumping from the cars while they were in motion, broke his left clavicle at a point between the cora-

coid process and the acromion, viz: about half an inch to the acromial side of the coracoid process. The outer end of the inner or sternal fragment was slightly elevated, and overlapped the acromial about one-quarter of an inch. The displacement and deformity were slight, as compared with those cases in which the fracture had occurred on the sternal side of the coracoid process. Dr. Wilcox and myself in attendance.

We laid across the back a broad, thick plate of gutta percha, previously covered with cotton cloth, and to this, as a back splint, we secured the shoulders. A sling and axillary pad were also used, with bandages. The fragments were very easily brought into place and retained.

The next day I found the dressings loose, and I readjusted them with care. On the sixth day, the whole being loose, the bandages, &c., were reapplied, and he was dismissed for his home, where he came under the care of Dr. Lansing Briggs, of Auburn. Dr. B. continued the dressings, but the bone has united with a slight projection and a shortening of about one-quarter of an inch.

CASE 48. *Simple oblique fracture, and delayed union.*

Michael Connor, aged 55 years, fell from a scaffolding and broke his left collar-bone, about one inch from the acromial end. He was sent immediately to the Bellevue Hospital, New York City. "Dr. Murdock dressed the fracture," says Michael, "with a collar upon my right shoulder, a pad under my left shoulder, and a sling under my elbow." The apparatus was retained upon the arm and shoulder about five weeks.

At the end of six weeks, Michael became an inmate of the Buffalo Hospital, and, upon examination, I found that the fragments were overlapped one-quarter of an inch, and that bony union had not yet taken place. Moving the fragments upon each other, produced an audible click at the seat of the fracture. He could not lift his arm.

DIVIS. 4.—*Comminuted.*

CASE 49. *Union with deformity.*

R. L., aged thirty-three years, was thrown from a horse, and broke his right clavicle in two places. One fracture was at the inner end of the outer third, and the other at a point nearer the sternum.

I was called to dress it on the third day, and, on the fourth day,

I applied Fox's apparatus. I could not, however, retain the fragments in place, nor prevent motion.

On the twenty-second day, one fragment had united, but the other remained loose. I substituted the figure of 8 bandage for Fox's apparatus, and applied a compress, &c., over the fracture.

On about the twenty-eighth day, union was effected throughout, but with overlapping and the usual deformity.

Eight years after the accident, I examined the arm, and find the bone united with a shortening of half an inch. The arm is as strong and as useful as before. The overlapping is in front, and not above.

CASE 50. *Union with deformity.*

——, aged twenty-nine years, of Buffalo, was thrown backwards from a wagon, striking upon his shoulder. I saw the man soon after the accident, and dressed the fracture at my college dispensary. The right clavicle was broken at two points, the intercepted piece being about one inch and a half in length, and considerably displaced. The outer fracture was at the inner end of the outer third of the clavicle.

It was noticed that, contrary to what has been supposed to be the general fact in such cases, he could easily raise his arm and hand to his head, and also, that by no force or art could the fragments be made to resume their places. Fox's apparatus was then applied, and the patient distinctly informed that shortening and deformity were inevitable. I have never seen the patient since.

I have learned, however, that the results which I predicted have occurred. It is shortened about half an inch.

CASE 51. *Union with deformity.* (See cast in my private collection.)

Charles Clarke, of Otisco, aged forty-six years, was thrown from his horse, breaking his left collar-bone at two points, viz: at its middle, and at a point about one inch nearer the sternum.

Dr. Ashbel Searle, of Otisco, was in attendance. Dr. Searle placed the arm in a sling, and secured it with bandages, but used no axillary pad. The dressings were at first exceedingly painful, and Dr. Searle was obliged to loosen them.

The bones united, and, fourteen years after the accident, I examined the arm, and found a very marked deformity in consequence of the displacement of the intercepted fragment. The clavicle is

shortened half an inch. His left shoulder is lower than his right. Functions of the arm perfect.

CASE 52. *Union with deformity, and maiming.* (See Case 38.)

Burgess, aged twelve years, then a resident of London, England. The right clavicle was broken at two points, viz: at the junction of the outer third with the inner two thirds, and also at a point one inch and a half nearer the sternum, the intercepted piece being thrown at right angles with the line of the clavicle, and remaining in that position until bony union was accomplished.

The vertical, intercepted piece projected a little more than half an inch both above and below, and the opposite fragments united with it on its anterior and posterior surfaces. Clavicle is shortened one inch.

I have not been able to ascertain what treatment was adopted by the London surgeon, but the result has been a general marasmus of the arm, inability to lift the arm, and a permanent abduction of the hand to the ulnar side, with flexion of the fingers.

He continued, however, to follow his occupation as a carpenter, shoving the plane more by the motions of his body than of his arm.

CASE 53. *Union with deformity.*

B. L. Derrick, aged about fifty years, a feeble, non-muscular man. Mr. D. fell about fifteen feet, striking upon the back and outer part of the left shoulder. Dr. Smith, of the Army, Dr. Wyckoff, and myself, made the first dressing. The clavicle was broken obliquely at the inner end of the outer third, and also at a point about one inch nearer the sternum. The intercepted fragment was quite movable. The acromial end of the sternal fragment was lifted upwards and carried forwards, and also rode upon the other fragment one inch.

We first attempted to replace the fragments before the dressings were applied, but we could not.

We then placed a very broad and firm gutta percha splint upon the back and shoulders well moulded and covered with cotton cloth. To this we drew back firmly the shoulders, but without effecting an adjustment of the fragments.

We then elevated the elbow and shoulder with a properly constructed sling, suspended from the opposite shoulder. The effect was to approximate and partially conceal in the tissues the project-

ing ends, but a careful examination showed that the riding still continued.

Finally, we adapted a large and pretty firm pad to the axilla, and using the arm as a lever, we attempted to carry out the shoulder. When great force was applied, the fragments moved about three lines, but no force which we could apply was sufficient to carry out the shoulder so as to accomplish exact reduction.

Relaxing, therefore, our efforts, and bringing the arm to that position in which the pressure ceased to be painful, we applied the requisite retentive bandages, and left the patient, assuring him that a shortening was inevitable.

After a few days, I became satisfied that the back splint was insufficient, and only burdensome, and I substituted for the whole dressing a simple figure of 8, with a sling, &c.

The result has been a union, with a shortening of one inch, the same as before any dressings were applied. There is also the usual projection of the fragments.

Fractures of the Clavicle.

INCOMPLETE FRACTURES.

No.	Age when it occurred.	Time since it occurred.	Sex.	Character of fracture.	Right or left side.	Point of fracture.	TREATMENT.	RESULT. United or not.	When united.	Amount of shortening.		Perfect or imperfect.
1	4 y'rs	8 y'rs	F.	Simple and trans.	R.	Outer third	Fox's apparatus	United		No shortening.	Cannot trace the fracture	Per.
2	19 "	10 "	"	"	L.	Inner third	Fox's apparatus	"		"	Slight projection in front	Imp.
3	3 "	7 mo's	"	"	R.	Middle third	Handkerchief sling	"		"	Slight projection at time of death	"
4	6 "	5 y'rs	M.	"	L.	"	Surgeon employed, but no treatment adopted	"		"	No trace of the fracture	Per.
5	12 "	6 "	"	"	R.	"	Sling and supine position	"		"	No trace of the fracture	"
6	12 "	6 "	"	"	L.	"	Sling and supine position	"		"	No trace of the fracture	"
7	2 "	24 "	"	"		Middle	Surgeon employed, but treatment unknown	"		"	Cannot determine the point of fracture	"
8	14 "	31 "	"	"		"	Unknown	"		"	A projection existed at seat of fracture about five years, but it has now entirely disappeared	"
9	5 "		"	"		Mid. 3d	Fox's apparatus	"	20 d'ys	"	Slight projection	Imp.
10	14 "	4 w'ks	"	"	R.	"	No treatment, but rest	"	21 "	"	At the end of four weeks there was a slight projection	
11	2 "	3 y'rs	F.	"	"	Middle	Unsuccessful attempts to straighten the bone on the 5th and 14th days. No other treatment	"	14 "	"	Slight projection	"
12	7 "	2 w'ks	"	"	"	"	Not seen by a surgeon until the 14th day. No treatment	"	14 "	"	Slight projection on the 14th day	
13	7 "	6 mo's	M.	"		Outer third	"Dressed as for a complete fracture"	"		"	Slight projection	"
14	13 "	13 y'rs	"	"		Middle third	Surgeon employed, but treatment unknown.	"		"	No trace of the fracture	Per.

COMPLETE FRACTURES.

MIDDLE THIRD.

15	50 y'rs	2 y'rs	M.	Simple and ob.	L.	Outer end of middle third	Fox's apparatus	United.	24 d'ys	½ inch	Inner fragment projects forwards and upwards	Imp.
16	57 "	1 "	"	"	"	"	Figure of 8. Velpeau's bandage	"		¾ inch	Inner fragment projects. Arm as strong as before	"
17	40 "	5 w'ks	F.	"	R.	"	Sling; axillary pad, &c.	"	28 "	½ inch		"
18	35 "	4 mo's	M.	"		"	Brown's bandage; axillary pad, &c. &c.	"		¾ inch	Considerable projection of inner fragment. Inability to lift the arm	"
19	14 "	4 w'ks	"	"	L.	"	Back splint; sling; no axillary pad	"	20 d'ys	½ inch	(Could lift his arm above his head before it was dressed.) Fragments project slightly	"
20	23 "	1 y'r	"	"	"	"	Sling, &c.	"			Fragments override	"

Fractures of the Clavicle.—Continued.

No.	Age when it occurred.	Time since it occurred.	Sex.	Character of fracture.	Right or left side.	Point of fracture.	TREATMENT.	RESULT.				
								United or not.	When united.	Amount of shortening.		Perfect or imperfect.
21	9 y'rs	16 y'rs	M.	Simple and oblique	L.	Outer end of middle third	No treatment	United by ligament		½ inch	Fragments move freely upon each other. No impairment of functions of arm	Imp.
22	17 "	9 "	F.	Simple and trans.	"	"	Treatment unknown	United		None	Fragments displaced in direction of diameter of bone half an inch	"
23	44 "	1 "	M.	Simple and oblique	R	"	Brasdor's jacket; sling; no axillary pad	"	21 d'ys	¾ inch	Paralysis of arm; curvature of spine, &c.	"
24	14 "	3 mo's	"	"	L.	"	Day's splint. Fox's apparatus	"	11 "	¼ inch	Fragments ride, but do not project much	"
25	22 "	4 "	F.	"	R.	"	Fox's apparatus.	"		¼ inch	Slight projection	"
26	35 "	5 y'rs	M.	"	"	"	Treated by a surgeon, but treatment unknown	"		½ inch	Right shoulder falls. Arm as useful as before	"
27	33 "	14 "	"	"			Treated by a surgeon, but treatment unknown	"		½ inch	Arm occasionally painful	"
28	30 "	1 "	F.	"	L.	"	Fox's apparatus; adhesive plaster dressing; Day's splint, with axillary pad, &c.	"	26 "	¾ inch	Projection of inner fragment. Functions of arm perfect	"
29	20 "	6 w'ks	M.	"	"	"	Fox's apparatus during three days, and after third day no treatment	"	21 "	¼ inch	Arm as useful as before. No more projection than is usually found	"
30	16 "	17 y'rs	"	"	R.	"	Surgeon employed, but treatment unknown	"		¾ inch	Remarkable projection of inner fragment. Functions of arm perfect	"
31	25 "	2 "	"	"	L.	"	Surgeon employed, but treatment unknown	"		¼ inch	Slight projection. Functions of arm perfect	"
32	40 "	2 mo's	"	"	"	"	Sling; paste compresses; axillary pad, &c.	"	30 "	½ inch	Projection of inner fragment	"
33	26 "	4 w'ks	"	Simple and trans.	R.	"	Back splint; sling; no axillary pad	"	7 "	Not any	Line of bone perfect	Per.
34	25 "	2 mo's	"	Simple and oblique		"	Back splint; sling; no axillary pad	"	14 "	¼ inch	Slight projection	Imp.
35	28 "	12 y'rs	F.	"		"	Surgeon employed, but treatment unknown	"		½ inch	Slight projection at seat of fracture. Functions of arm perfect	"
36	12 "	23 "	"	"		"	Surgeon employed, but treatment unknown	"		½ inch	Slight bend at seat of fracture. For many years the deformity was much greater. Functions perfect	"
37	46 "	11 "	M.	"	L	"	Bandages; adhesive straps; no axillary pad	"	14 "	¼ inch	Slight projection. use of arm perfect	"
38	30 "	1 "	"	Simple and trans.	R.	"	Fox's apparatus	"	21 "		This was a second fracture at the same point. The original deformity was not increased. (See case 52.) Prosecution	
39	32 "	10 "	"		L.	"	Sling; bandages; no axillary pads	"		Not any	A slight forward displacement	
40	20 "	2 "	"	Simple and ob.			Fox's apparatus	"		½ inch	Slight impairment of strength	"

Fractures of the Clavicle.—Continued.

No.	Age when it occurred.	Time since it occurred.	Sex.	Character of fracture.	Right or left side.	Point of fracture.	TREATMENT.	RESULT. United or not.	When united.	Amount of shortening.		Perfect or Imperfect.
41	47 y'rs	4 y'rs	M.	Simple and oblique	R.	Outer end of middle third	Sling; bandages; axillary pad, &c.	United		1 inch	Considerable projection of inner fragment. Use of arm impaired. &c. &c.	Imp.
42	51 "	3 mo's	F.	"	"	"	Fig. of 8; Fox's apparatus; axillary pad, &c.	"		¼ inch	Projection of fragments, paralysys, and swelling of arm	"
43	5 "	35 y'rs	"	Simple	"	"	Surgeon employed, but treatment unknown	"			Slight projection; occasionally painful	"
44	32 "	8 "	M.	Simple and oblique		"	Surgeon employed, but treatment unknown	"		¼ inch	Slight projection. Arm not as strong as before	"
45	15 "	6 "	"	"	L.	"	Back board splint, &c.	"			No deformity	Per.
							INNER THIRD.					
46	80 y'rs	2 mo's	F.	Simple and trans.	R.	One inch from sternum		United		Not any		Per.
							OUTER THIRD.					
47	21 y'rs	1 y'r	M.	Simple and trans.	L.	Outside of coracoid process	Gutta percha back splint	United		¼ inch	Inner fragment projects slightly	Imp.
48	55 "	6 w'ks	"	Simple and oblique	"	One inch from acromion process	Fox's apparatus	Delayed 6 w'ks		¼ inch	Unable to lift his arm	"
							COMMINUTED.					
49	33 y'rs	8 y'rs	M.	Commin. and oblique	R.	Inner end of outer third and middle	Fox's apparatus; fig. of 8, &c.	United	22 and 28 d'ys	½ inch	Use of arm not impaired	Imp.
50	29 "	1 "	"	Commin.	"	"	Fox's apparatus	"		½ inch	He could raise his arm to his head before it was dressed	"
51	46 "	14 "	"	"	L.	Middle, and one inch nearer sternum	Sling, &c. No axillary pad	"		½ inch	Remarkable deformity. Shoulder falls. Functions of arm perfect.	"
52	12 "	18 "	"	"	R.	Inner end of outer third, and 1½ inches nearer sternum.	Employed a surgeon, but treatment unknown	"		1 inch	Wasting and palsey of arm. Contraction of hand and fingers	"
53	50 "	3 "	"	"	L.	"	Gutta percha back-splint; fig. of 8, etc.	"		1 inch	Inner fragment projects	"

REMARKS.

"Yet it is lamentable, even at the present day, to see how some *fashionable* doctors torment their patients, in cases of fracture of the clavicle, with tight bandages, which, after all, have little or no power in keeping the bones *in situ*."—Note to *Works of Hippocrates*, Sydenham Society's ed., vol. ii. p. 585.

I have found it convenient to divide fractures of the clavicle into "Incomplete" and "Complete," and again to arrange complete fractures under several heads, according as they may be simple or comminuted, or as they may have occurred through the middle, inner or outer thirds.

Boyer denied the existence of the incomplete or partial fracture, and calls it "an occurrence utterly impossible." (*Boyer on Bones*, Amer. ed., vol. i. p. 17, 1805.) But Boyer had reference, no doubt, to what has been called sometimes a partial fracture in *adult* bones, and not at all to that accident which we are now considering.

Meding, Turine, Dupuytren, Malgaigne, South, Chelius, Syme, Miller, B. Cooper, Norris, Barton, Gibson, with others, recognize its existence, and no one, perhaps, at the present day, doubts its possibility. J. Rhea Barton, of Philadelphia, has also written upon this subject a very interesting memoir, entitled, "Remarks on certain Injuries of the Bones in Children." (See *Philadelphia Medical Recorder*, vol. iv. p. 13, 1821.)

Fergusson compares it to the fracture of a "walking stick;" South to the cracking of a "fresh willow," but it is more generally known as the "green stick" fracture.

It is necessary, I think, to admit at least two forms or degrees of incomplete fractures, the first of which is unaccompanied with any lesion of the periosteum, and the second is attended with this additional circumstance. A "refinement" which, I ought to say, Mr. Erichsen thinks unnecessary.

I am disposed, however, not only to admit these divisions, but even to extend them, and to regard interperiosteal fractures as existing in three conditions. First, as a mere bend, in which the fibres upon the one side are compressed, and upon the other side expanded, without any actual disruption, except what may be interstitial, and too trivial to be reckoned. Second, as a fracture of the central fibres of the bone, while the outer, more completely cartilaginous and more elastic fibres, preserve their integrity, a condition which M. Blandin claims to have first explained, and which he considers, without sufficient reason, it seems to me, as the sole cause why, in

partial fractures, the fragments do not separate. Third, as a fracture of the middle and outer fibres, generally upon one side only, but within the periosteum.

It is certain that these several injuries do occur; the bone being sometimes merely bent, as happens most frequently in infancy. In such cases, the bone will often resume its form spontaneously, as does the twig of willow after having been bent upon itself. I have reported seven of these cases, and the oldest patient was ten years, while of the second and third variety the oldest child was fourteen years.

Since, however, they possess this feature in common, namely, that the periosteum is not broken, and there are, consequently, no abrupt angles or sharp spiculæ pushing out at the seat of fracture, but only a smooth, knuckle-like projection, it is proper to speak of them as one form.

In the other form of incomplete fracture, the periosteum yields more or less, and a thin fragment of the outer fibres of the bone may be made to fly off from the point of fracture, as in Case 13. Or it may break transversely to its diameter (as occurs most frequently), but not completely across. No crepitus can, therefore, be discovered, unless, by imprudent efforts to examine or to straighten the bone, it should be entirely separated, and then at once both crepitus and displacement will be manifest. To this form of accident belong Cases 2, 9, 13, and 14, the oldest of which patients was nineteen years.

Unlike complete fractures of the clavicle, a considerable proportion of these occur rather to the sternal side of the middle, and they are seldom oblique.

The direction of the displacement is usually forwards and a little downwards. It will be observed, however, that the amount of displacement existing in a bone broken in this way, and for some time united, cannot always be measured by the amount of anterior projection at the seat of fracture, since in Case 3, as well as in Case 13, reported to me by Dr. Green, and I think, also, in several other cases which have come under my observation, the line of the axis of the bone is completely restored, and there exists only a node-like projection in front, with no corresponding depression behind, indicating, as Dr. Green has very properly suggested, one of those fractures in which the bone has been for the moment bent forwards, but has also immediately, in consequence of its elasticity, resumed its original position. The projection, which is soon after found to exist,

is probably, therefore, an effusion under the periosteum—a callus. This may explain, also, why, in some instances, the parents do not discover the fracture until after several days, in one instance, Case 11, not until after five days, and in Case 12, not until after three weeks. There was at first no deformity, because no effusion had yet occurred.

Fig. 3.

Incomplete Fracture. Case 12.

Even in those cases where the bone remains bent, most, if not all of the callus will be found in front, or in the direction in which the bone has yielded. This was very marked in the specimen obtained from the dissecting-room,* where the angular deviation was extraordinary, but there was no callus behind the point of fracture. A circumstance which may so easily mislead us as to the amount of actual bending, ought not to be forgotten.

The prognosis in these simple accidents is generally very favorable. Where the bone is broken, but has by its own elasticity resumed its former position, the deformity, depending only upon the presence of callus, will sooner or later disappear, yet not entirely, I think, until after several months or even years. Where the fracture is a little more complete, and the fragments are not immediately restored spontaneously, the restoration can sometimes be accomplished with ease by moderate pressure upon the projecting point, but this only when the case is early presented to the surgeon, and not always

* This case follows Case 14, but it is not included in the tables, or in the general enumeration.

even then, as some of my cases have proven. In partial fractures of the bones of the forearm, occurring in children, I have not experienced much difficulty in straightening the bones at any time within a week or two, but the same observation will not hold good with regard to the clavicle. The forces cannot be so conveniently applied, and its repair and consolidation are much more rapid.

I agree with Syme, that, in cases of partial fracture, whether it occurs in the clavicle or elsewhere, when the fragments are once restored, mechanical support will hardly be required; at least only in a few cases. If, however, such support becomes necessary, the treatment ought to be essentially the same as for complete fractures.

The division of complete fractures of the clavicle, according as the accident occurs through the inner, outer, or middle third, has been adopted for the convenience of prognosis. By the outer third, I mean all that portion of the clavicle included between its scapular extremity and the internal margin of the conoid ligament, be it more or less than one-third. The remaining portion is intended to be divided equally into two separate thirds. The peculiarities of these several portions, in respect of anatomical relations, liability to fracture, results, &c., will explain the propriety of the divisions.

Fractures which are *complete* occur mostly after the bones have become firm and unyielding. They are also generally oblique, seldom comminuted, still more rarely compound. The point of a bone at which a complete fracture usually occurs, is at or near the outer end of the middle third, and a little to the sternal side of the coraco-clavicular ligament. It might be more exact to say that the fracture *commences* usually at this point, and from thence extends, more or less obliquely, downwards and inwards towards the sternum, the entire length of the fracture, including, sometimes, nearly one-third of the bone.

Bransby Cooper, Miller, Liston, Fergusson, and many others, have spoken of this fracture as occurring most frequently at about its "middle," and in the last American edition of *Fergusson's Surgery*, is a plate, intended, I suppose, to indicate the point where the fracture usually takes place, and it is here represented as a little to the sternal side of the centre. The fact is, however, that it generally gives way at what Syme calls "the beginning of the acromial curvature," and near the junction of the outer third with the inner two-thirds.

Why the bone should break more frequently at this point, especially in the adult, it is not difficult to understand. It is smaller

here than elsewhere, and less supported by muscular and ligamentous attachments. At this point, also, the axis of the bone begins pretty abruptly to curve forwards, more abruptly in the adult and male than in the child and female.

When, therefore, a blow is received upon the point of the shoulders—and it is in this way, by a *contre coup*, that the fracture most frequently occurs—the force of the blow conveyed through the outer portion of the clavicle is suddenly arrested, and expends itself upon the point where the direction of the axis is changed.

Of 48 simple fractures of the clavicle recorded by me, 40 have occurred through the middle third, and a great majority, about 35, at the acromial end of this third; and of 58 fractures, including the incomplete and comminuted, which latter are always broken twice, 39 have occurred at or near this point.

The direction of the displacement is almost always such, that the inner end of the outer fragment is depressed, and falls below the outer end of the inner fragment. It is also found often a little behind the inner fragment.

Syme has seen a case in which the outer fragment overrode the inner; and M. Gueretin reports another case, in the *Presse Médicale.* Hippocrates also speaks of this accident as known to him. Desault saw several cases, and has recorded one. (*Treatise on Fractures and Dislocations*, Amer. ed., p. 16.)

An overlapping and consequent shortening of from one-quarter of an inch to one inch, is almost always present in oblique fractures, occurring at the outer end of the middle third, and not unfrequently in fractures occurring at other points, and in transverse fractures.

A double fracture, or a simultaneous fracture, occurring in both clavicles, seldom occurs. I have recorded two cases (*four fractures*, three of which are incomplete), both occurring in young boys. (Cases 5, 6, 10.)

Malgaigne says it has only happened to him to see it once in 2,358 cases, at the Hôtel Dieu, and he can recollect only five other examples. And of 158 cases of broken clavicles reported from the New York Hospital, it is stated to have occurred in only four. These gentlemen, however, only report hospital cases, and they have reference, doubtless, to complete fractures. Incomplete fractures are not so likely to be seen in such institutions, but are more common, I suspect, in private practice.

Prognosis in this fracture deserves especial attention. In no other

bone, except the femur, does a shortening so uniformly result. Of 39 complete fractures, only 7 have united without shortening; and of 25 simple, oblique, complete fractures, which have occurred at or near the outer end of the middle third, only one has united without any shortening (Case 45); and in this case the patient was but fifteen years old, and the fragments were never much displaced, nor can I say that the treatment had anything to do with the result. Three cases of complete *transverse* fracture, occurring at the same point, have united without shortening.

The shortening varies from one-quarter of an inch to one inch, and the fragments are almost always found lying in the position in which we have described them to be at the first—the outer end of the inner fragment being above, and often a little in front of the outer: sometimes, especially in lean persons, and when the fracture is very oblique, presenting a sharp and unseemly projection.

Fig. 4.

Complete Fracture. Case 16.

The presence of a small amount of ensheathing callus soon after the cure is completed, sometimes increases the deformity. It is rarely seen to encircle the bone completely, but, if present, it is usually most abundant in the direction of the salient points of the fracture, that is, above and below; so that, unless the examination is made with care, the projecting points of callus which remain, sometimes after many years, may be easily mistaken for an intercepted fragment turned at right angles to the axis of the bone. In

the case of partial fracture, reported by Dr. Green, a similar circumstance was observed, but which his natural shrewdness soon enabled him to explain.

Complete fractures through the sternal third of the bone are exceedingly rare, and I have been able to record, from my own observation, but one case, which occurred in an old lady, eighty years of age. The fracture was within half an inch of the sternum, transverse, and it united without any dressings, and without deformity. The rhomboid ligament must, in such accidents, generally prevent any considerable displacement.

It is not quite so rare to find a complete fracture through the acromial third of the clavicle, or through that portion beginning at the acromion process, and terminating at the sternal margin of the internal fasciculus of the coraco-clavicular ligament.

I have recorded two cases, in both of which a slight riding, about one-quarter of an inch, has resulted; and in one, the union was delayed at least beyond six weeks. The deformity, or projection, was in both cases very trifling.

Comminuted fractures have been observed by me five times. The intercepted fragment generally falls off from the line of the other fragments, and cannot easily be restored. I have never seen a com-

Fig. 5.

Comminuted Fracture. Case 52.

pound fracture of the clavicle, although the outer end of the inner fragment often projects in such a way as to excite a serious apprehension that it will push through the skin.

The clavicle usually unites with great rapidity, generally within twenty days. In one instance (Case 33), a transverse fracture, the union seemed to be tolerably firm at seven days. Wallace reports one case from the Pennsylvania Hospital, which was cured in eight days, and another in nine days (*Amer. Med. Journ.*, vol. xv. p. 115). Velpeau says the clavicle will unite in from fifteen to twenty-five days; Benjamin Bell, in fourteen.

I have only once seen a case of ligamentous union (Case 21), and in one other instance, already referred to, union was delayed at least six weeks.

It is seldom that the arm suffers any serious ultimate injury, whatever may be the mode of union. This is most remarkably confirmed by the instance of ligamentous union, in which the functions of the arm are very little, if at all, impaired. Chelius, however, quotes a case of artificial joint of the clavicle where "the use of the limb was not destroyed, but impaired." (*Op. cit.*, vol. i. p. 603.) The paralysis in Case 23 was not due certainly to the fracture, nor is it probable that it was due to the treatment, but only to some injury entirely foreign to the fracture. In Case 42, also, no paralysis existed previous to the repeated attempts which were made to overcome the riding of the fragments. I have no censure for the excellent surgeon who sought thus to accomplish an end so desirable. He was attempting to do only what others claimed to have done in similar cases, and with the same apparatus. A failure, therefore, was certain to bring discredit upon his skill, or to subject him to the charge of not having employed proper diligence and care in the use of the means at his command. But it has added another instance to that mentioned by Dr. Parker, in which the use of the axillary pad has resulted in at least temporary paralysis of the arm, and to this class, also, probably belongs the case treated by Desault himself, and reported by Bichat, in which the paralysis began only on the third day, and was complete on the seventh. How many more the records of private or hospital surgery, if carefully examined, might show, I cannot tell. In Case 38, where the bone had been previously comminuted, a paralysis existed, but whether it was due to the severity of the original injury or to the treatment, could not be satisfactorily learned. Mr. Earle has recorded a case in which the clavicle was comminuted, and the "nerves converging to form the axillary plexus" were so injured that paralysis of the arm ensued. (Samuel Cooper's *Surg.*, Amer. ed., vol. ii. p. 323.)

In a case where conclusions must be drawn so mortifying to our professional pride, it is but fair that the writer should be permitted to defend the value of his evidences by a reference to the opinions of other practical surgeons.

"Great difficulty has been experienced in treating this fracture." (Syme's *Principles of Surgery*, p. 266, Philadelphia ed., 1832.)

"The indications of treatment are plain, but, unfortunately, not very easily fulfilled." (Miller's *Practice of Surgery*, 3d Amer. ed. from 2d Edinburgh, p. 309.)

"Fractures of the clavicle will often cause greater trouble than those which are considered of a more serious character, and the utmost pains will not, on all occasions, suffice to prevent a slight prominence of the inner fragment." (*Practical Surgery.* By Wm. Fergusson. 4th Amer. ed. from 3d London, p. 215.)

"Setting of this fracture is easy, yet only in very rare cases is the cure possible without any deformity." (*System of Surgery.* By J. M. Chelius, of Heidelberg, with notes by South. 1st Amer. ed., vol. i. p. 603.)

"It is considered, also, that the close union of the fracture of the collar-bone depends less on the apparatus than on the position and direction of the fracture; (therefore, in spite of the most careful application of this apparatus, some deformity often remains.") (*Ibid.*, p. 605.)

The following statements of M. Velpeau are found in a letter addressed to the editor of the *Boston Medical and Surgical Journal*, by J. Willis Fisher, dated Paris, Sept. 16, 1846.

Mr. Fisher remarks that the report is drawn in part from his own notes, and partly from "the report published in the *Gazette des Hôpitaux*." It is the annual summary of M. Velpeau's practice at La Charité, for the year ending Sept. 1846.

"The fractures of the clavicle, less numerous than ordinarily, have been only four. They have proved these three often repeated propositions: First, that contrary to the general opinion, the patients can carry the hand to the head when they have a fractured clavicle. Secondly, that the consolidation of the bone demands only from fifteen to twenty-five days, and not six weeks or two months. Thirdly, that with all the bandages imaginable, we cannot prevent fracture of the two internal and oblique thirds from leaving a deformity." (*Bost. Med. and Surg. Journ.*, vol. xxxv. p. 212.)

"Fracture of the clavicle is almost always followed by deformity,

whatever may be the perfection of the apparatus and the care of the surgeon." (*Vidal* (*de Cassis*). Paris ed., vol. ii. p. 105.)

"Hippocrates has observed that some degree of deformity almost always accompanies the reunion of a fractured clavicle; all writers since his time have made the same remark; experience has confirmed the truth of it." (*Treatise on Fractures and Luxations.* By P. J. Desault. Edited by Xav. Bichat, and translated by Charles Caldwell, M. D. Philadelphia, 1805, p. 9.)

"The venerable gentleman who stands at the head of American surgery, and whose manipulations with the roller approach very nearly to the limits of perfection, informed us, in 1824, that he *had never seen a case of fractured clavicle cured by any apparatus, without obvious deformity.*" (Reynel Coates, *Amer. Med. Journ.*, vol. xviii. p. 62. Old series.)

I need not say that the "venerable gentleman" to whom Dr. Coates refers in this passage, was the late Dr. Physick, of Philadelphia.

If evidence were needed beyond that which has been furnished, of the difficulty of bringing to a successful issue the treatment of this fracture, it might be supplied, one would think, by a reference merely to the immense number of contrivances which have been at one time and another recommended.

A catalogue of the names only of the men who have, upon this single point, exercised their ingenuity, would be formidable, nor would it present any mean array of talent and of practical skill. Such are the names of Paulus Ægineta, Petit, Duverney, Boyer, Boettcher, Desault, Ledran, David, Moscati, Dupuytren, Ravaton, Cruveilhier, Lasere, Delpech, Flamant, Reynaud, Meyer, Mayor, Meslier, Glaucius, Kluge, Heister, Evers, Brunninghausen, Wilhelm, Eberl, Brefeld, Eicheimer, Koppenstaedter, Brasdor, Earle, Chapman, Keal, Ellis, Lee, Amesbury, Wattman, Hancock, Coates, Fox, Brown, Hunton, Day, Keckerly, Guillou, Cabot, Coleman, Bartlett, Welch, &c.

All these surgeons, however, have admitted the same indications of treatment, viz: That in order to a complete restoration of the outer fragment, which alone is supposed to be much displaced, we are to carry the shoulder upwards, outwards and backwards. But as to the means by which these indications can be most easily, if at all accomplished, the widest differences of opinion have prevailed; and in the debate it may be seen that while on the one hand no invention has wanted for both advocates and admirers, on the other hand, no method has escaped its equivalent of censure.

Hippocrates, Celsus, Dupuytren, and others simply directed the patients to lie upon their backs, with the spinal column so supported and lifted with pillows, as that the shoulders would, by their own weight, fall backwards; and from the account given by Dr. Lente, it may be inferred that a similar plan is generally adopted in the New York City Hospital. "But this result (deformity) rarely happens when the patient has strictly followed the directions of the surgeon, as to position especially, for it is by position more than by any other remedial means, that a good result is to be effected. * * * The persevering continuance of the supine position in bed, with the head low, and, if necessary, a pad between the shoulders. This is the treatment uniformly adopted by Dr. Buck, in the hospital, and the results of his treatment are certainly such as to recommend it highly." (*Lente.*)

Nearly the same method we find recommended by Alfred Post, in 1840, then one of the surgeons of that hospital; the arm being merely kept in a sling and bound to the side with the patient lying upon his back; and Dr. Post mentions a case treated in this manner which terminated with very little deformity. (*N. Y. Journ. Med.*, vol. ii. p. 266.)

Albucasis, Lanfranc, Guy de Chauliac, Petit, Parr, Syme, Skey, Brunninghausen, Parker, and very many others, especially among the English, have preferred, in order to carry the shoulders back, a figure of 8, while Desault, Colles, South, Samuel Cooper, have represented this bandage as useless, annoying, and mischievous.

Heister, Chelius, Miller, Brefeld, Keckerley, prefer for this purpose, some form of back-splint, extending from acromion to acromion, against which the shoulders may be properly secured. Parker says that splints of this kind, with a figure of 8 bandage, are "better than all the apparatus ever invented." While Mr. South gives his testimony in relation to all dressings of this sort, as follows: "I do not like any of the apparatus in which the shoulders are drawn back by bandages, as these invariably annoy the patient, often cause excoriation, and are never kept long in place, the person continually wriggling them off to relieve himself of the pressure." (*Note to Chelius*, vol. i. p. 605.)

Fox, Desault and others bring the elbow a little forwards, and then lift the shoulder upwards and backwards. Wattman carries the elbow still further forwards, so as to lay the hand across the opposite shoulder, while Guillou carries the hand and forearm *behind* the patient, and then proceeds to lift the shoulder to its place.

Thus Desault, Fox, and Wattman accomplish the indication to carry the shoulder back, by lifting the humerus while the elbow is in *front* of the body, and Guillou accomplishes the same indication by lifting the humerus when the elbow is a little *behind* the body. Chelius, also (vol. i. p. 603), says: "The elbow, as far as possible, is to be laid backwards on the body."

Sargent, who believes that with Fox's apparatus "the occurrence of deformity is the exception," and not the rule, and prefers it to all others, has treated three cases by Guillou's method, and is perfectly satisfied with its operation. (*Note to Miller's Practice*, p. 311.)

Hollingsworth has also treated one case successfully by Guillou's method, and adds his testimony in its favor. But how shall we explain these equal results from opposite modes of treatment? Is the indication to carry the shoulders back, which Fox sought to accomplish by pressing the elbow upwards and backwards, as easily attained by pressing the elbow upwards and forwards? Or are we not compelled to infer that there has been some mistake as to the precise amount of good accomplished by the apparatus in either case? Moreover, Coates, Keal, and others, instruct us that the only safe and proper position for the humerus is in a line with the side of the body, and that it must neither be carried forwards nor backwards.

Paulus Ægineta, Boyer, Desault, Pecceti, Liston, Fergusson, Samuel Cooper, Erichsen, Miller, Skey, Fox, Smith, Norris, Sargent, recommended an axillary pad, while Richerand, Velpeau, Dupuytren, Benjamin Bell, Syme, deny its utility, or affirm its danger. Dr. Parker has seen one patient in whom paralysis of the arm resulted from the pressure upon the brachial nerves, in the attempt "to *pry* the shoulder out"—(Samuel Cooper's *Surgery*, with notes by Parker, vol. ii. p. 328), and I have myself recorded another.

Desault's plan, which took its origin, as Velpeau thinks, in the spica of Glaucius, under various modifications, is recommended by Delpech, Cruveilhier, Lasere, Flamant, Samuel Cooper, Fergusson, Liston, Cutler, Physick, Coates, and Gibson; while by Velpeau, Syme, Colles, Chelius, Samuel Cooper, and Parker, it is regarded as inefficient and troublesome. Says Mr. Cooper: "In this country, many surgeons prefer Desault's bandages; but I do not regard them as meeting the indications, and consider them worse than useless." (*Op. cit.*, vol. ii. p. 328.)

The dextrine bandages, or *apparatus immobile*, of Blandin, Vel-

peau, and others, constitute only another form of the bandage dressing of Desault.

The sling, in some of its forms, is employed by Richerand, Huberthal, Colles, Miller, Fox, Smith, Sargent, Norris, Neil, Benjamin Bell, Bransby Cooper, Earle, Chapman, Keal, and by a large majority of the English surgeons; while Dr. Gibson declares the *sling* bandage employed so much by the English, "the most inefficient, contemptible, and injurious of all contrivances for such purposes."

No apparatus, perhaps, has been so generally employed, among American surgeons, as that form of the sling introduced by Dr. George Fox into the Pennsylvania Hospital in 1828, since which time no other has ever been used in that institution for the treatment of broken clavicles.

Sargent says of it: "Fractures of the clavicles, treated by this apparatus, are daily dismissed from the Pennsylvania Hospital, and by surgeons in private practice, cured without perceptible deformity." (*Sargent's Minor Surgery*, p. 180. 1848.)

Norris, in a note to *Liston's Practical Surgery*, affirms that "the chief indications in the treatment of fracture of the clavicle are *perfectly* fulfilled by the use of this apparatus." (*Op. cit.*, Am. edit., p. 47.)

Smith, in his *Minor Surgery*, declares that Fox's apparatus accomplishes "perfect cures" in very many cases, and that it is "a very rare thing for a simple case to go out of the house (Pennsylvania Hospital) with any other deformity save that which time cures, viz: the deposition of the provisional callus." (*Op. cit.*, p. 209.)

Such testimony in favor of any dressing demands respectful attention; and I shall not be regarded as detracting from the respect due to these authorities, when I express my belief that it is in deference to the distinguished reputation of the surgeons who have during the last thirty years had charge of the services in that hospital, and who have been so loud in its praise, that the use of this apparatus has, with us, become so general. I believe, also, that, in some measure, this general preference is due fairly to the intrinsic excellences of the dressing. But I must be permitted to express a doubt whether it has made deformities of the clavicle "the exception, instead of the rule," with us. I have used this dressing, as may be seen by a reference to my cases, oftener than any other form, and yet my success has by no means been so flattering as has been the success of these gentlemen. I have seen others employ it, also, and with pretty much the same results. Nor ought it to be forgotten that, in

Great Britain, by far the greater majority of surgeons employ an apparatus essentially the same. I have seen it in many of the hospitals, and Mr. Bickersteth, one of the surgeons of the Liverpool Infirmary, informed me, in 1844, that it had been in use with them as long as thirty years. All that has justly been said against the English mode of dressing by slings, is equally true of this; and whatever has been affirmed of the danger of using an axillary pad, applies as much to this as to any other mode of using the same.

I believe, however, that, in the Pennsylvania Hospital, the axillary pad employed is not so large, and, especially, not so thick, as that recommended by Desault, and in this respect it is plainly an improvement; but then, in the same proportion that it is made less thick, it is less powerful to accomplish the indication in question; and if it merely fills the axillary space, then it is no longer a fulcrum upon which the arm is to operate as a lever, but it is only, in its effect "retentive."

Regarding, then, the importance of this question to the interests of surgery, and observing the wide differences of opinion which are entertained here and elsewhere as to the real value of this dressing, is it asking too much of these gentlemen, that they will present us some more precise statistical testimony? It will be observed that its advocates claim for it what is not to-day, at least, claimed for any other apparatus, viz: that, under its use in the Pennsylvania Hospital, and in the hands of private practitioners, so far as they have seen, deformities have become the "exception." It is affirmed to answer "perfectly" *all* the indications. By which it must be intended to say, that, in addition to both of the other indications, that also, which has always heretofore been found so difficult, if not impossible, the carrying out of the shoulder, is in a majority of cases perfectly accomplished. The clavicles are not shortened.

If it is intended, however, to say that a shortening is not generally prevented, but only that no unseemly projection of the fractured ends will be found to result, I reply, that then it does not answer *all* the indications, and I beg, further, to suggest that the avoidance of an upward projection seems, to me, to depend much more upon that part of any apparatus which lifts the shoulder, and which belongs to a multitude of other forms of dressing as well as to that in question, than upon that which forces the shoulder out, and it may be accomplished, in a majority of cases, as well without an axillary pad, with a mere sling, as with it. But, in fact, my experience has convinced me that the absence or presence of such a projection,

after union, is due more to the circumstances of the fracture, as to whether it is more or less oblique; and still more especially, to the degree of roundness, or emaciation of the patient, than to any form, or part, or condition of the apparatus. It will be found more distinct in oblique fractures than in transverse, and much more marked in thin persons than in plump, or fat persons, and more so in muscular than in non-muscular. In short, I affirm that such a projection has occurred as often under my observation, when this dressing has been used, as it has when other forms have been employed.

Finally, while I deprecate incautious assumptions in regard to the capabilities of any form of dressing for broken collar-bones, a disposition to which is manifested by more than one advocate of special plans,* I am ready to bear my humble testimony in favor of that one of whose claims I have taken the liberty to speak so freely, and which is usually known in this country by the name of Fox's apparatus, consisting essentially of a sling, axillary pad, and bandages to secure the arm to the chest, and to which the stuffed collar is a convenient accessory, but admits of various modifications, answering the same ends. Among the considerable variety of dressings which I have used, this, either with or without such slight modifications as I shall presently suggest, has seemed to be most simple in its construction, the most comfortable to the patient, the least liable to derangement (if I except Velpeau's dextrine bandage), and as capable as any other of answering the several indications proposed.

No apparatus is better able to answer the first indication, namely, "to carry the shoulder up," and thus to bring the fragments in line. If, as not unfrequently happens, the outer end of the inner fragment is also carried a little upwards and forwards, it may be, in some measure, replaced by inclining the head to the injured side, or by a carefully adjusted compress and bandage. But it is not probable that any patient will consent to remain a long time in a position so unnatural and constrained; nor is it very easy, as the experiment

* The bone will be found to lie quite smooth, to remain of its proper length, to unite, generally, within twenty days, and without any unseemly exuberance of callus. —*Liston.* At length, Desault proved that a feeble and unskilful mode of treatment was the sole cause of a want of success, and that, by being more correct and judicious, art might be as successful here as in other fractures. They supposed that to be a superabundant callus, which was nothing but a displacement of the fragments. These visionary hypotheses ceased to exist as soon as this displacement was prevented by a proper apparatus.—*Ibid.*

will show, to maintain a steady pressure upon this portion of the broken clavicle.

The second indication, "to carry the shoulder back," is certainly much more difficult of accomplishment than the first; and it does not seem to me to be fully met by the sling dressing, but, until some mode is devised less objectionable than any I have yet employed, or than any, the mechanism of which I have seen described, I see no alternative but to trust to that action of the muscles attached to the scapula, by which, as Desault first explained, when the shoulder is lifted perpendicularly, it is also in some degree carried backwards, and that, too, it has occurred to me frequently to observe, just as much as when the upward pressure is made with the elbow placed in front of the body.

It is my belief, however, from the evidences now before us, that the third indication "to carry the shoulder out" still remains unaccomplished; that it cannot be claimed for this, or for any other apparatus yet invented; that, in a certain class of cases which I have sufficiently indicated, constituting a vast majority of the whole number, it is able to prevent a riding of the fragments. Nor, seeing the difficulties in the way, and the amount of talent which has been already devoted to their removal, have I much confidence that this end, so desirable, and so diligently sought, will ever be attained. Yet it is presumptuous, perhaps, to say what the skill and ingenuity of a profession whose labors never cease, may hereafter accomplish.

Having already expressed my preference for the sling, I have only to add what I consider necessary modifications in the form of this dressing recommended by Dr. Fox.

Dr. Coates, in the excellent paper already referred to, calls attention to the danger of making too much pressure upon the brachial artery and nerves, when the axillary pad is used, and the arm is, at the same time, carried forwards upon the body. In bringing the elbow forwards so as to lay the forearm across the body, the humerus is made to rotate inwards, and the brachial artery and nerves are brought into more direct apposition with the pad. The same objection must hold, only in a greater degree, to M. Guillou's method of carrying the forearm across the back.

The humerus ought then to be permitted to hang perpendicularly beside the body, and thus the nerves and bloodvessels will be removed in a great measure, yet not entirely, from pressure. The pad (to be employed only as a part of the contentive means, and not as a fulcrum) should be firm, but scarcely thicker than is ne-

cessary to fill completely the axillary space, when the elbow is made to press snugly against the side of the body.

In consequence of having placed the elbow further back than is recommended by Dr. Fox, it will be necessary, also, to vary, in some way, the suspensory tapes; those coming from the humeral portion of the arm-tray must pass in equal numbers, and in opposite directions—before and behind the body—towards the stuffed collar; and each set of front and back tapes, attached to the humeral portion of the tray, must be in pairs, for the convenience of tying. I find it convenient also to secure the arm to the body by two or three turns of a roller, applied always with great care, so that its pressure shall be in no degree painful or uncomfortable.

APPENDIX.

AMERICAN INVENTIONS AND MODIFICATIONS OF APPARATUS FOR THE TREATMENT OF FRACTURED CLAVICLES.

Fig. 6. *George Fox's Apparatus.*—"Consists of a firmly stuffed pad of a wedge shape, and about half as long as the humerus, having a band attached to each extremity of its upper or thickest margin; a sling to suspend the elbow and forearm, made of strong muslin, with a cord attached to the humeral extremity, and another to each end of the carpal portion; and a ring made of muslin stuffed with cotton to encircle the sound shoulder, and serve as means of acting upon and receiving the sling." (*Sargent's Minor Surgery*, p. 149.)

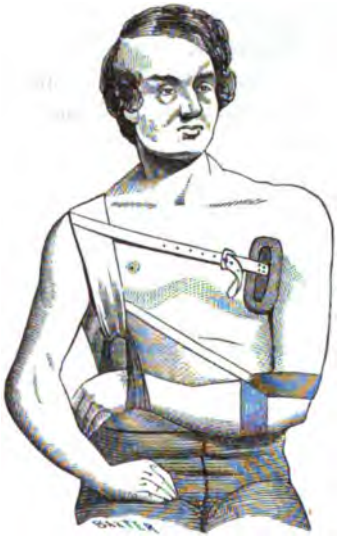
Fig. 6.

George Fox's Apparatus.

Fig. 7. *E. Bartlett's Apparatus.*—"For an axilla pad, roll a strip of woollen flannel, four or five inches wide, around the axilla strap, to the size required.

"Put on the collar. Apply the pad, and pass the strap under the collar, thus securing each in its place.

Fig. 7.



E. Bartlett's Apparatus.

"The sling, being first attached to the collar by the forward strap, is made to receive the arm of the side affected, when the straps at the back

Fig. 8.

The Author's Apparatus.

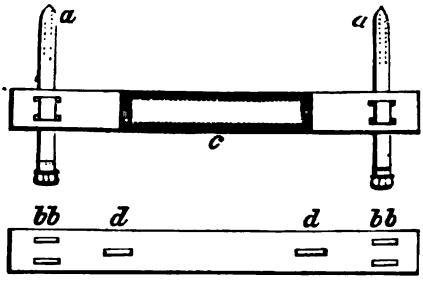
of the sling should be buckled, one behind, the other forward, to the ends of the collar with requisite tightness to reduce the fracture and maintain the ends in apposition.

"The apparatus may be used for either side, by changing the attachment of the sling." (*Dr. Bartlett.*)

Fig. 8. *The Author's Apparatus.*

Fig. 9. *E. C. Keckeley's Apparatus.*—"The splint, of which the accompanying figures give a representation, is two feet three inches long and three and a half inches wide.

Fig. 9.



E. C. Keckeley's Apparatus.

"The upper figure exhibits a front view, and the lower a back view of the splint. *a*, *a*. Are two bandages with buckles attached to one end of each. *bb*, *bb*. Are four mortised holes for the passage of the two bandages *a*, *a*. *c*. A portion of the splint padded, to prevent its bruising the patient. *d*, *d*. Two loops of leather, tacked on the back of the splint, for the passage of the bandages, where the mortised holes are too far apart for the breadth of the patient from shoulder to shoulder."

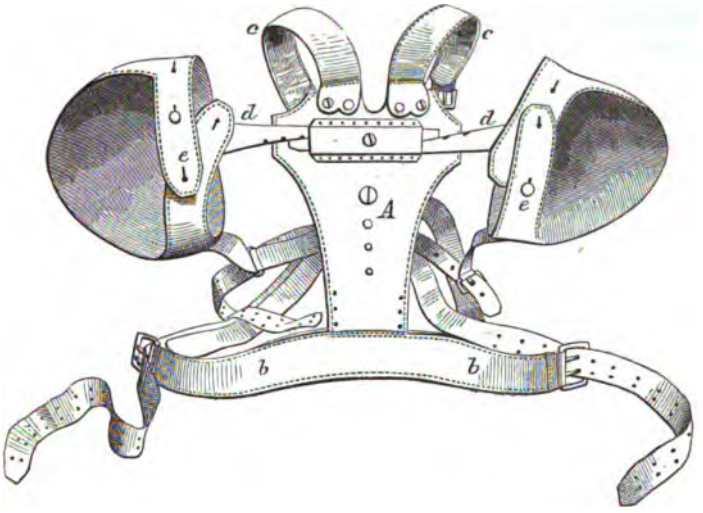
"*Mode of Application.*—The end of the splint corresponding to the uninjured side is to be pressed close to the back of the shoulder, and retained so by drawing the bandage tight, and retaining it by means of the buckle. Previous to fixing the bandage, it should be passed through two loops on a small pad, which is to be placed in the axilla. This pad is used for the purpose of preventing the cutting of the bandage. After passing the other bandage through two loops, on a large cuneiform pad, which is placed in the axilla of the injured side, it is drawn sufficiently tight and secured by the buckle. The last thing to be done is to place a handkerchief, doubled into a triangular form, in such a manner over the arm, the front and back parts of the thorax, as that it shall draw and confine the arm of the injured side close to the body, give it support, and prevent its falling down." (*Am. Journ. of Med. Sciences*, xv. 115, 1834.)

Fig. 10. *Welch's Apparatus.*—Back view, complete, with the exception of the sling and axillary cushion.

Fig. 11. Front view, complete, as it appears when applied. The frame, consisting of the dorsal piece with the thoracic and cervical arms, is formed of flexible metal, which yields sufficiently to adapt it always to the

motions of the spine and chest. The lateral or thoracic arms encircle the body, and the vertical or cervical arms, passing upwards, outwards and

Fig. 10.



Back View of Welch's Apparatus.

A. Vertical or dorsal piece. *b, b*. Lateral or thoracic arms. *c, c*. Oblique or cervical arms. *d, d*. Transverse or acromial arms. *e, e*. Leather shoulder-caps and straps.

Fig. 11.

Front View of Welch's Apparatus.

forwards, conform to the sides of the neck. The whole are well and thickly padded.

The transverse or acromial arms, running parallel with the spine of the scapula to the acromion process, are made of elastic steel, slightly curved backwards at their outer extremities, so that, when the shoulders are made fast to them by the shoulder-straps, they will tend constantly to pull the shoulders outwards and backwards.

The several parts of the apparatus are adjusted to persons of different sizes.

1st. The cervical arms can be made to approach or to separate from the arch, and they can also be made longer or shorter.

2d. The acromial arms can be lengthened or shortened upon either side, and when in use the arm opposite the broken bone should be longer than the one opposite the sound bone, to give greater freedom to the arm upon this side.

In the front view of the apparatus is seen "a padded metallic ring, the upper edge of which is placed nearly as high as the upper edge of the sternum. Above are straps connecting it with the cervical arms. Laterally is a strap connecting with the shoulder-cap of the sound side, to prevent the central ring from inclining toward the injured side; opposite this is another strap attached also to the sling supporting the arm and drawing the arm of the injured side inwards;" below these are straps connecting with the thoracic arms, and at the inferior point of the ring is a strap designed to support the hand and forearm.

Fig. 12.

Hunton's "Yoke Splint," modified by Day.

"The *sling* in which the arm rests has thin strips of metal sewed into the cloth, at the sides of the arm both above and below the elbow, with

rings for the straps, in order to give a uniform and unyielding support to the arm the entire length of the sling."

The axillary pad may be made in the usual form, and secured in the ordinary mode.

The inventor claims for this apparatus that it possesses, in common with no other apparatus, the essential and distinguishing feature of accomplishing the three indications through supports resting and depending almost exclusively upon the spine and sternum, and but slightly if at all depending upon the shoulder of the sound side, of whose motions therefore it is entirely independent. He believes that there is no motion of the body which can more than slightly change their relative position.

Fig. 12. *A. Hunton's "yoke splint," modified by Day.—New Jersey Medical Reporter*, vol. v. p. 146, 1852.

REPORT

ON THE

DIET OF THE SICK.

BY CHARLES HOOKER, M.D.,

OF NEW HAVEN, CONNECTICUT.

DIET OF THE SICK.

PRELIMINARY to the special subject of this Report will be briefly noticed the physiology of nutrition, and some general principles for the regulation of the diet in health, together with common errors of diet as causes of disease.

Little reference will be made to authors, the object being to give the results of the writer's personal experience and observation, rather than to compile a complete and full treatise on diet.

THE PHYSIOLOGY OF NUTRITION.

Nutrition is that function by which the plastic elements of the blood are converted into the different tissues of the body, so as to become parts of the living organic system. In this strict sense, nutrition and assimilation are terms of similar import. In a wider sense, nutrition includes all that series of functions by which the food is received into the body, and prepared for the process of assimilation, and, also, those functions by which the refuse materials of the food, and of the organic tissues, are eliminated from the body. This series includes the prehension of food, mastication, insalivation, deglutition, chymification, and chylification—functions constituting the general function of digestion; and, also, absorption, respiration, and assimilation, with the eliminating functions, defecation, and the cutaneous and urinary secretions.

These various processes are carried on by an assemblage of organs, together termed the nutritive apparatus, and constituting a most complicated animate machine. These organs are all connected by a reciprocal relation of action, and, as in any artificial machine, derangement of a single spring, wheel, or cog, disorders the action of all the parts, so in this animate machine, failure in any one

organ disorders the whole function of nutrition. Thus, for instance, in the primary stage of digestive action, the salivary secretion depends much upon the motions of mastication, and the presence of food in the mouth. Imperfect mastication, therefore, causes imperfect insalivation, and thus the stomach is unduly taxed to comminute and dissolve the food, the balance of the nutritive apparatus is disturbed, and the whole function of nutrition becomes disordered. So if the cutaneous or urinary secretion is suspended or disordered, a reflex influence is soon felt in the digestive organs, with a general derangement of health.

GENERAL PRINCIPLES AND COMMON ERRORS OF DIET.

From this reciprocal relation of the organs composing the nutritive apparatus, is inferred an important general principle for the regulation of the diet, that *each and all of the organs of nutrition should perform their appropriate offices in disposing of the food.* From this general principle several rules may be deduced.

1. *In eating, sufficient time should be allowed for perfect mastication and insalivation.*—The neglect of this rule is the cause of much disease. Business men, in the hurry of engagements, give little thought to the mischiefs of fast eating. Our public tables present a scene of apparent strife to excel in dispatch of a meal. It is a great drawback to the comfort and sanitary benefit of travelling by public conveyances, that passengers are compelled, by short stops, to bolt their food. Even in most private families, the short time allowed for meals is incompatible with healthy digestion; indeed, so common is this error in this country, that it may be considered as a national sin. Loss of teeth is by many persons made an excuse for imperfect mastication; it is, however, no excuse for hurried eating, for if mastication cannot be well performed, there is the more need that the food should be retained in the mouth until thoroughly insalivated.

2. *Solid food should constitute the greater proportion of the diet.*—It is a common mistake to suppose that liquid food is more easily digested than solids. Dyspeptics learn that their weak stomachs bear solid meat and bread better than broths and gruel. This fact, with many others, shows the importance of the salivary secretion, and consequently the utility of mastication in promoting this secretion; and, in most diseases, if there is sufficient strength for the

motions of mastication, solid food, requiring the primary organs of digestion to perform their appropriate part of the general function, is commonly to be preferred.

3. *An excessive quantity of drink is to be avoided.*—Tea, coffee, and other drinks are often used in eating to wash down the food, whereas the food should be retained in the mouth until the admixture of saliva is sufficient for its deglutition. Many dyspeptics advantageously adopt the habit of not drinking until the completion of a meal, thus securing a copious secretion of saliva.

But imperfect insalivation is not the only injurious consequence of an excessive use of drinks. Chymification, also, is imperfectly performed when an undue proportion of drinks takes the place of the natural solvents, the saliva and gastric juice, the nutrient properties of the food become weakened by excessive dilution, and the general function of nutrition is consequently impaired.

Physicians who have not turned their attention particularly to this subject, in their investigation of diseases, are little aware how often derangement of health is attributable to an excessive use of liquids. Their injurious influence is generally known and acknowledged as one of the principal causes of dyspepsia. Cholera infantum, and other bowel complaints of children, and the various forms of scrofula, both in children and adults, are most commonly preceded and attended by an inordinate thirst, and a habitual excessive use of drinks. A large proportion of the subjects of phthisis have been excessive water drinkers. Dropsy, in many cases at least, is known to be caused chiefly by this injurious habit. In these, and various other diseases, sometimes the most important indication is, to restrict the quantity of drink; and with this restriction, many cases, which present a most serious aspect, will require but little or no medication.

Several cases of *urinary disorder*, which came under my notice about thirty years ago, caused me to suspect that there was often a connection between a long-continued habit of excessive water drinking, and the painful disorders of the urinary organs in old men, popularly associated under the term gravel. Continued observation has assured me of the truth of this suspicion; and in various cases the unheeded warning which I have given to patients in middle age, has been succeeded in advanced life by those distressing and dangerous disorders which I had predicted—pain in the urinary organs, irregular secretion, retention, and, in some cases, diseased prostate gland.

The reason of this connection is obvious. In middle age, when the secretory functions are active, the skin and kidneys will eliminate an enormous quantity of liquid without obvious injury to the system. Such persons perspire profusely, and not distinguishing between cause and effect, they will argue the necessity of large drinking on account of sweating so much. But the cutaneous secretion is one of those soonest impaired by age; and in advanced life, as the skin becomes inactive and dry, a disproportionate burden of eliminating the superfluous liquids of the system is thrown upon the urinary organs, which, in consequence, often take on a train of disorders rendering old age miserable, and sometimes wearing out life with excruciating protracted suffering.

Purpura hæmorrhagica is another disease which is in most cases preceded by the habit of excessive water drinking. The remarkable fluidity of the blood, with its deficiency of red globules, indicates its morbid dilution. A general defect of nutrition is manifested by the pale bloated skin, and the languor and lassitude, with the dejected sorrowful countenance, which characterize this disease. This defective nutrition also accounts for the lax condition of the vessels, which allows the blood to permeate their coats, producing petechiæ and ecchymosed spots in the skin, and causing hemorrhage from various parts of the body.

In May, 1839, I was called to visit a young man, ostler in the stable of a hotel, who was attacked in the evening with epistaxis. Notwithstanding ordinary remedies, the hemorrhage continued until morning, when the whole surface of the body was found speckled with minute petechiæ, intermingled with a few ecchymoses, three or four lines in diameter. New extravasations continued to appear in the tissues of the skin, until a shilling piece could not be applied to any part of the surface without covering several petechiæ or ecchymosed spots. The bleeding continued from the nose, and successively appeared from the gums, the stomach, and intestines, and from several abraded spots on the skin, until the patient died, about two weeks from the commencement of the hemorrhage. This patient had been an enormous water drinker, resorting to the pump, while employed in the stable, at least once or twice every hour, and drinking largely each time.

In February, 1852, a delicate married woman, eighteen years of age, recently from Massachusetts, and now within about two weeks of her expected confinement, sent for me, supposing herself to be in labor. She had been bleeding from the nose almost constantly

for seven days; the pulse was now 130, and extremely feeble, the skin was cold and blanched, and three or four large ecchymosed spots were found on the limbs. The pains, which she had mistaken for those of labor, were the rheumatic-like pains commonly attending purpura, and affected chiefly the limbs, which were very sore and painful on motion. She sank rapidly, without the occurrence of parturition, and died short of two days from the time I first saw her—having bled profusely, not only from the nose, but also from the mouth, lungs, stomach, and bowels. The blood effused during the last few hours of life was scarcely colored, but appeared almost like pure water. From early childhood she had been remarkable for the habit of using water inordinately; and during her pregnancy she continued to drink frequently and largely during the day, and regularly took a large pitcher of water to her bedside at night.

Two women attended by me, and several others under the care of medical friends, I have known to die with purpura immediately or within a few days after parturition. All of them had this habit of excessive drinking during pregnancy, and most of them from childhood.

The cases of purpura which I have seen in very young infants, have always been traceable to an inordinate use of drinks by the mother. Two infants I have seen, who died with hemorrhage from the umbilicus, in one of them the bleeding not commencing until three days after the separation of the cord. In one of them, ecchymoses appeared on various parts of the body and limbs; in the other, only in the interior of the mouth. There was no hereditary predisposition to purpura in these cases, but both mothers had an inordinate thirst, which they freely indulged, during pregnancy.

In April, 1852, I was called to visit an infant eight months old, affected for the last two days with discharges of blood from the bowels. The child was plump, and might have appeared to a superficial observer in fine health. Its skin, however, was blanched, and the countenance had the characteristic sorrowful expression of purpura. Within two days, the whole surface—head, trunk, and extremities—became thickly speckled with minute petechiæ, besides, in all, forty or fifty larger ecchymosed spots; the dense superficial layers of the integument, as usual, being the seat of the petechiæ, while the extravasations spread broader in the more loose, deeper-seated layers. The whole roof of the mouth was one continuous ecchymosis. The bleeding continued profuse, not only from the

bowels, but also from the mouth and stomach. From birth, this infant had been very fretful, and had been put to the breast whenever it cried—as often, at least, the mother said, as once an hour, night and day, and commonly every half hour; and the mother drank inordinate quantities of tea, water and other liquids. The milk was secreted profusely, but it appeared, on examination, little different from pure water. The causes of the disease in the child were sufficiently obvious. The child was immediately taken from the breast, and fed on cow's milk, beef-tea thickened with flour, and broths. The medication consisted of acetate of lead and small doses of opium, sulphate of soda and frequent minute doses of elaterium to evacuate the aqueous constituents of the blood, and quinine. Under this treatment the child recovered, and acquired a healthy constitution.

These few cases of purpura are selected from more than thirty occurring under my observation since 1839, which have been connected with the habitual excessive use of drinks. A few other cases I have seen in children, succeeding measles, scarlatina, cholera infantum, and other diseases, which perhaps have not been referable to this cause.

There is also a variety of purpura in which the hemorrhagic habit seems to be not acquired, but congenital. In such persons, the slightest blow or pressure on any part of the surface is immediately succeeded by a deep-blue ecchymosis; a slight scratch, or other injury, bleeds freely; and, without any apparent cause, hemorrhages often occur from the nose and other parts of the system; yet they will sometimes live to a considerably advanced age, constantly manifesting through life this hemorrhagic habit. These cases are different from the more common acute form of purpura, and probably are owing to some original lax conformation of the vascular tissues, more than to the condition of the blood. Nor are they, in all cases at least, attended with the habitual thirst and excessive drinking which I regard as the common cause of acute purpura.

I have not had opportunity to be conversant with another variety of this disease, known as purpura nautica, or sea-scurvy. This is attributed by some pathologists to the long-continued use of salted provisions; and the inquiry may be suggested, whether the use of salt may be indirectly the cause of the disease, by inducing thirst, and a consequent excessive use of drinks.

Habitual excessive drinking, when it does not cause full develop-

ment of purpura, may be noticed, especially in children, commonly to produce some degree of the pale, bloated skin and other symptoms of the disease. This habit attends most persons subject to epistaxis, many of the subjects of hemorrhoidal discharges, and, according to my observation, most women who are troubled with hemorrhage during parturition, when not caused by misplaced placenta or other mechanical cause.

4. *Food should be taken at regular times, and with proper intervals.* —The customs of different people, in regard to times of eating, are extremely various. In some districts of ancient Greece, it was the common custom to take but one meal during the whole twenty-four hours; while some communities, going to the other extreme, customarily indulge in eating five or six times in a day. This diversity is not a matter of so much importance as at first thought might be supposed. Men are creatures of habit, and they can accustom themselves to great diversity of practice in this respect, without inconvenient results, provided regularity of habit is preserved. A great proportion of mankind, however, have fixed upon the custom of taking three meals in a day, which, probably, is the number best adapted to the proper exercise of the nutritive organs and the preservation of health.

The principle should be observed that food should not be taken into the stomach until a sufficient time is allowed for the proper disposal of a former meal. Dr. Beaumont and other observers have shown that the most digestible articles of food require one hour for their complete solution in the stomach; and the time for the solution of different articles of diet varies from one to five or six hours. Such is the process of action in the stomach of a healthy, robust individual. But a very slight derangement of health may interfere with and disturb this process; and it is not uncommon, even in persons who scarcely feel indisposed, for food to remain in the stomach, undissolved, six, eight, and even twelve hours. The stomach, moreover, like all other organs, cannot be constantly employed in action, but must have its proper time to rest after disposing of the food taken at each meal.

From these considerations, it is rationally inferred that eating oftener than once in five or six hours must confuse and derange the digestive action. A neglect of this principle constitutes a very common and most injurious dietetic error.

This error begins often with the first feeding of infants. The young mother, whenever her infant cries, kindly puts it to the

breast; and very soon the little sinner learns that, so often as it wants this favor, it only has to cry. The mother who commences in this way is almost sure to have a crying, if not a sickly, baby; and the accoucheur in attendance on a young mother does not perform his whole duty without giving proper instruction in regard to feeding the child.

The activity of the digestive functions in infancy, and the easy digestibility of the food proper for that age, require the intervals of feeding to be shorter than in later life; but the principle should be observed, of allowing sufficient time for complete digestion and the proper repose of the stomach. A judicious rule is to not put an infant to the breast oftener than once in two or three hours during the day, nor more than once or twice at night; indeed, some of the healthiest infants habitually rest through the whole night without nursing. More frequent indulgence creates a habit both annoying to the mother and prejudicial to the infant's health.

This injurious habit is very apt to be encouraged during any temporary illness of infants, when the feelings of the anxious mother can hardly withhold the soothing influence of the breast. This, however, is the very time that frequent feeding is particularly injurious, when the digestive powers are enfeebled by disease; and the duty of the physician often requires him to caution a mother against injuring her sick child by mistaken kindness. There can be no doubt that infantile diseases are often seriously aggravated by this practice of frequent feeding.

Children, after weaning, also, are often injured by irregular feeding; indeed, a large proportion of the diseases of young children are caused or aggravated by this error. If the little thing is fretful, it must be soothed by a piece of cake, or bread and butter. If taken to visit its good grandmother and affectionate aunts, each must perform her kind part in stuffing the dear one with rich cake, pie, or candy. Many of the visits of physicians to young children are rendered necessary in consequence of such mistaken kindness.

Soon after weaning, a child should be restricted to its three meals a day, with perhaps a small allowance of some light food, such as a bit of bread and butter, or a little milk, once between the regular times of eating. Six times in twenty-four hours is the most that it should be indulged with food—the most that is compatible with a regular appetite and healthy digestive action. The common notion that a feeble child should "eat a little, and often," because it eats but little at once, is a most pernicious error. It burdens the weak

digestive organs with a frequency of action which in vigorous health they cannot suffer with impunity.

It would be tedious to attempt a notice of all the manifold evils resulting from irregular eating—from a neglect of regular meals, and from frequent eating between meal times.

Physicians, who ought to understand and appreciate the importance of this subject, as a body, do themselves much injury by irregularities of diet. The physician's life is necessarily subject to much irregularity; he cannot always have his regular sleep, and often he cannot conveniently have his regular meals, and he is liable to become habitually careless on this subject. Many, unquestionably, from this neglect, impair their health, and prematurely end their lives; and this constitutes probably one chief reason why the medical profession is shorter lived than the clerical and legal professions. Much of this disadvantage, however, may be avoided, on the part of physicians, by a systematic effort to be home at regular meals, and by a habitual practice of making themselves at home everywhere and anywhere, when overtaken by regular times for eating.

The arrangements of our public conveyances not only subject travellers to the evils of hurried eating, already mentioned, but in many instances provide no conveniences for regular meals; indeed, on some of our railroad routes, but for the mercy of the cake and fruit boys, starvation would be almost inevitable. This is a matter which is of vast injury to the comfort and health of the travelling public, and needs reform.

The evils of this error are very common in families of the sick. The necessary attention to the sick—the anxiety and watching, continued night and day—often cause regular meals, with other domestic concerns, to be neglected. This irregularity occurs, too, at a time when the family most need the support and invigoration of their customary refreshment; and it is doubtless a main reason why a disease which has attacked one person so often prostrates successively other members of the family. Physicians should feel it their duty earnestly to caution families against this dangerous error.

5. *The diet should consist of a variety of food.*—The several organs composing the digestive apparatus have various adaptations in relation to different kinds of food. Lean meat, for instance, and other nitrogenized substances remain in the stomach until completely dissolved; while oily food passes undissolved out of the stomach, to be acted on by the secretions in the small intestine—the special

office of the pancreas, according to the views of recent physiologists. A proper mixture or variation of diet is therefore necessary to excite the appropriate action of the several parts, and maintain an equilibrium of action in the whole machine.

Large observation of the dietetic habits of men, in different countries and ages, no less than the conformation of the digestive organs, would seem to prove that man was designed to be omnivorous.

But it is earnestly contended that the common use of flesh for food is a mischievous error; and names of men are cited, celebrated for high physical and intellectual attainments, who are said to have lived mostly or wholly on vegetable food. Some of these individuals are known to have used largely of milk, eggs, or other light kinds of animal food. And the possibility must be admitted, of rare cases of high physical and mental development, notwithstanding a restricted diet. When, however, observation is extended from individuals to nations, national imbecility is invariably found connected with an exclusive vegetable diet. The common diet of Ireland may be regarded as a chief reason for the frequent abortive efforts of that people to free themselves from the dominion of their beef-eating neighbors; for their capability is manifested by the fact that, under a course of varied animal food, they become most hardy laborers and efficient soldiers. Millions of the rice-eating inhabitants of the East are held in subjection by a handful of British troops. The history of war, also, shows a remarkable correspondence, both in land and naval battles, between the comparative efficiency of forces, in equal numbers, and their diet scale—especially the meat rations.

Even those animals whose digestive organs indicate a strict adaptation to one kind of food, thrive better with a diet somewhat varied. The delicate canary bird, with its simple granivorous conformation, not only requires a change of seeds, but also an occasional supply of fresh herbs, and even a little yelk of egg or other animal food. The vigor and endurance of the horse are much increased by frequent changes of the various kinds of grain and other food with his staple, hay; and the usefulness of the animal, no less than economy of feeding, requires these variations. Certainly, therefore, the human digestive organs, with their obvious comparatively greater adaptations, clearly indicate that nature designed man for a wide range of diet.

A mistaken opinion has, to some extent, prevailed, that a simple vegetable diet favors mental cultivation. Scholars sometimes claim

that, under such a diet, the head is clearer, and they can study better. Many a man of brilliant early promise has persevered in this delusive course until, with a failure of physical constitution, mind and body have been together wrecked. Hypochondria, and other forms of insanity, are often attributable to this error of restricted diet. The mind implanted on an ill-fed physical constitution is almost sure to have a stinted and distorted growth. The strict dieter will sometimes excel in some particular department of learning—he will spin out a single train of thought, with nicety and no little ingenuity—but he is commonly a one-idea man. Hence, most visionary theorists, and enthusiastic ultraists—the originators and devotees of the various "isms" and "ologies" that disturb the good common sense of mankind—generally have their restricted notions of dietetic regimen.

As a general rule, a generous diet is indispensable to vigorous mental culture—to richness and variety of thought, and especially to a rational practical application of knowledge to useful purposes. It would be hard to raise a "universal Yankee nation," or even one genuine Yankee, on a strict vegetable diet.

A fact which gives much support to the opinion that a generous and varied diet favors health and longevity may be noticed, that in every community, most persons who live to a very advanced age have been free good livers.

The mischievous consequences of *a sudden restriction of diet* are often observed during the prevalence of epidemic diseases. In towns where cholera has prevailed, popular opinion has commonly attributed the disease to improper diet. The report of fatal cases is not thought complete without a mention of the food taken by patients immediately before their attack. Newspapers and boards of health have proclaimed the frightful dangers of a well-furnished table; municipal authorities have prohibited the common sale of vegetables, and ordinary articles of food have been utterly proscribed. Families have thus been driven to a radical change in their habits of living, fearfully selecting from their scanty bill of fare, as choosing between dangers, and watching the sensations of the stomach for the signs of outbreaking disease.

Such panic and sudden change to an almost starving diet would, any year, cause sickness, the specific character of which would be subject to prevailing epidemic influences. There can be no doubt that these causes greatly increase the number and fatality of cases during the epidemic prevalence of cholera, dysentery, and other

diseases. In the epidemic dysentery which prevailed in New Haven, in 1849, it was observed that a very large proportion of the fatal cases were in persons who, early in the season, adopted a restricted diet. Any great change in habits of living is dangerous during the prevalence of fatal epidemics; even bad habits, as that of intemperance, should be cautiously abandoned at such a time.

It is a doctrine often taught, as a leading principle in the choice of food, that *the appetite is the natural and proper guide.* This principle is true, provided there is a natural, healthy appetite; but if the appetite fastidiously refuses common articles of food, and narrowly restricts its choice, it indicates a want of proper tone in the digestive organs. It is then a sickly appetite, and is not a proper guide. The true principle here is to regard man as an omnivorous animal, and to discipline the organs to the use of all common kinds of food.

Many children have this fastidious appetite; in some depending on original constitutional weakness, and affecting whole families, particularly those in which scrofula is hereditary; in others, acquired by errors of diet, such as we have already noticed. This fastidious sickly appetite is the legitimate result of frequent and irregular feeding—of pampering with pastry and confectionery—and of indulgence in a frequent and large use of cold water, and other drinks. This fastidiousness, whether originally constitutional or acquired, is sure to continue so long as these errors are indulged. In such cases, alterative and tonic medicines are important aids; but the chief dependence is on a regulated diet.

In the physical education of children and young persons, it should be a principle to discipline the digestive organs to a tolerance of all common kinds of food. Though cases may occur of peculiar idiosyncrasy, in which an aversion to particular articles of diet is obstinate, and even insuperable, such cases are uncommon; and this aversion should generally be considered as indicating a want of natural healthy tone in the digestive organs.

6. *The diet should consist of both nitrogenized and non-nitrogenized aliment in due proportions.*—Though oily food contributes little, if any, to the organization of the solid tissues of the body, it is indispensably important as a calorific element. In cold climates, where this element is most required, as in Kamschatka, Greenland, and other high northern countries, it properly becomes the staple food. On the contrary, in tropical regions, where the body is subjected to excessive heat, the free use of oily food is dangerous, and

often productive of disease. In temperate climates, between these two extremes, the healthy nutrition of the body requires a judicious combination of the two great classes of aliment—nitrogenized and calorific food.

An insufficient use of oily food is a common and most injurious error of diet. Infants at the breast are sometimes rendered weak and sickly by this error on the part of mothers, the milk, in consequence, becoming deficient of its oily constituent. Many children, also, after weaning, become sickly from want of oily nutriment. Deprived of the butter, to which they have been accustomed in the mothers' milk, they are fed on cow's milk too much diluted, panada, arrowroot, or some simple farinaceous food. A common consequence of such feeding is a general paleness of the skin and mucous membranes; the lips lose their natural florid hue; the ears are cold, white, and translucent; the limbs and whole surface of the body are usually cold, with an occasional transient flush of heat, especially about the head; the bowels alternate between costiveness and diarrhœa, and the child has restless nights, with frequent starting in its sleep. In many cases of this common train of symptoms, the health is soon improved simply by adding a little butter to the ordinary food.

Cholera infantum often originates from this cause, and in the treatment of this disease a due supply of oily nutriment is in many cases of the utmost importance.

At a later period of childhood, when more animal food is used, there is often an aversion to fat meat and other oily nutriment; and most parents encourage this aversion, from the common notion that greasy food is injurious to health. This aversion is almost universal in families hereditarily scrofulous; though, as rare exceptions to the general rule, some scrofulous children have a voracious appetite for all kinds of oily food, from eating which inordinately they can hardly be restrained.

With young girls, fashion sometimes deters from eating of fat meat, which is regarded as a sign of grossness and want of delicacy; and many, between the ages of thirteen and twenty years, manifest the injurious consequences of this error. The skin is flabby, cool, and blanched, and the whole system appears exsanguious; the cheeks are sometimes flushed with a transient, irritative, feverish heat, but there is a persistent coldness of the hands and feet, and the aggregate heat of body is uniformly deficient. Menstruation is irregular, painful, scanty, or suppressed. The lymphatic glands

of the neck become enlarged. The appetite is irregular and fastidious; especially in the morning food is taken reluctantly, or utterly refused. In short, the general assemblage of symptoms indicate a scrofulous constitution. In most cases there is a morbid thirst, and the symptoms become aggravated by an excessive use of cold water and other drinks. If, perchance, the friends indulge a fashionable hydropathic monomania, the external use of cold water is brought in requisition, still more to lessen the vital heat, depress the powers of life, and aid the full development of phthisis.

The relation between calorific (non-nitrogenized) food and scrofulous diseases has until recently attracted little attention from physicians. Some isolated facts have been long noticed, as the exemption of the oil-eating people of northern countries from phthisis, a similar common exemption of butchers, the acknowledged remedial efficacy of cod-liver oil, and a supposed prophylactic and curative influence of cane juice and sugar. But the general fact, that the scrofulous diathesis is characterized by a peculiar strong aversion to oily food, has been strangely overlooked.

In May, 1850, a summary of the writer's observations on this subject was communicated to the New Haven County meeting of the Connecticut Medical Society—observations years before made known to the annual classes in the Medical Institution of Yale College. The results in the region of these observations, similar, it is presumed, to what might be observed throughout the country and in other temperate climates, warrant the following conclusions:—

1. Of all persons, between the ages of fifteen and twenty-two years, more than one-fifth eat no fat meat.

2. Of persons at the age of forty-five, all, excepting less than one in fifty, habitually use fat meat.

3. Of persons who, between the ages of fifteen and twenty-two, avoid fat meat, a few acquire an appetite for it, and live to a good old age, while the great proportion die with phthisis before forty-five.

4. Of persons dying with phthisis, between the ages of fifteen and forty-five, nine-tenths, at least, have never used fat meat.

Most individuals who avoid fat meat also use little of butter and oily gravies; though many compensate for this want, in part at least, by a free use of those articles, and also of milk, eggs, and various saccharine substances. But they constitute an imperfect substitute for fat meat, without which, sooner or later, the body is almost sure to show the effects of deficient calorification.

That these striking facts are commonly unnoticed, the truth of

which is rendered evident by observation and inquiry, is conclusive proof that this subject has received little attention. Its importance hardly can be doubted or over-estimated, when it is considered that full one-fifth of the human race is destroyed by phthisis. To parents, whose children have this aversion to oily food—this fearful sign of early dissolution—the subject is one of deepest interest. It also deserves the careful consideration of life-insurance companies, of young persons in making matrimonial alliances, and certainly of physicians, the professed public guardians of human life and health. The presumption will commonly hold true, that a person who habitually avoids fat meat at the age of twenty-one, will die of phthisis before forty-five.

But the question arises, whether the want of oily nutriment is a common cause of phthisis, or whether the aversion to it is only a concomitant of the scrofulous diathesis. There appears reason to believe that in most cases it bears to the scrofulous diathesis the double relation of effect and cause. That it is an effect, is indicated by the fact that this aversion almost constantly occurs in families hereditarily scrofulous, thus becoming a sign of original constitutional weakness. On the contrary, the indulgence of this aversion deprives the body of its necessary material of vital heat, and thus causes the development of scrofula.

The great practical question, however, is, whether oily food exerts a prophylactic and curative influence; whether an acquired appetite for it, and its free use, tend to prevent the development of phthisis, and to arrest its progress. On this point, reference may be made to the exemption of the oil-eating people of northern climates, and, as commonly observed, of butchers; and to the reputed efficacy of cod-liver oil, and other oils used by some physicians, as remedies for phthisis. It is the common testimony of physicians that cod-liver oil usually improves the warmth, color, and general nutrition of the body, even in advanced stages of the disease. Such are its effects after the full development of that disease, the precursory signs of which, in most cases, have been for years becoming manifest. These signs, such as the cold feet and hands, the general paleness, and other symptoms of a scrofulous diathesis, we find associated with the habitual scanty use of oily food. In consideration of these facts, can a reasonable doubt be entertained that the generous use of calorific nutriment must tend to obviate these precursory symptoms, and thus to fortify the body against this common destroyer?

The experience and observations of the writer constrain him to give most positive testimony on this point. In many cases of phthisis in its early stage, and in some cases far advanced, with unequivocal signs of tubercular excavation, the use of oily nutriment has caused a speedy amelioration and ultimate cure. In most cases, it must be admitted, the improvement might be attributed, in part at least, to simultaneous medication; but the oily diet has been tried, in connection with such variety of medication, and other circumstances, as to leave no doubt of its important agency. My patients are plainly told that the habitual use of fat meat is indispensable to encouragement of cure.

It is remarkable that many patients, who have never used fat meat, to whom, indeed, it is absolutely disgusting, will readily take cod-liver oil. My common practice, therefore, is to give the oil regularly three times a day until this aversion is overcome. To patients whose circumstances require strict economy, common sperm oil has often been advised with most satisfactory results. Though I would not positively dissent from the common opinion, that cod-liver oil possesses peculiar remedial properties, I am inclined to the belief that its efficacy is owing mainly, if not wholly, to its calorific power. It has almost uniformly been observed, that the few patients who have phthisis after a habitual use of fat meats, are little, if any, benefited by cod-liver oil; and, on the contrary, those have been most benefited by it who have been least accustomed to oily nutriment.

But the great importance of oily food, in relation to this disease, consists in its preventive efficacy. In most cases of unequivocally developed phthisis, all curative plans of treatment fail. Prevention is the great object; to accomplish which, I feel assured, a rational plan of diet—a proper combination of nitrogenized and calorific food—may be employed with most salutary effect. The significant fact, that the subjects of phthisis are, with few exceptions, those who avoid fat meat, should be generally known. Young persons should be fully warned against this dangerous error. The gay miss of eighteen, whose countenance, to the practical observer, clearly shows the want of calorific nutriment, should be plainly told that if this error of diet is continued, phthisis will claim her as a victim before forty-five. In short, all persons who avoid fat meat, should fully understand their danger. It is no pleasant office to press upon the attention of our young friends and patrons such homely truths; but the physician who faithfully and candidly does it, will sometimes

have the glad reflection of having saved a patient from premature decline.

This aversion to oily food is by some persons easily overcome; while others require long-continued, persevering trial—a contest that the patient must realize as between life and death. Some young ladies, in compliance with an extorted promise to eat daily a small portion of fat meat, I have known to cover a morsel between two thin layers of bread, and thus swallow the nauseous dose, until perseverance has successfully disciplined the appetite; and in no instance, except in hopeless debilitated patients, has resolute persevering effort failed of eventual success. This disciplining process is commonly aided by the use of iron, quinine, and other tonics, to invigorate the digestive organs.

Not only in phthisis, but in various other diseases, imperfect calorification occurs in consequence of want of oily nutriment.

Many of the prominent symptoms of cholera infantum are dependent on this cause—indeed, most of the obstinate cases of this disease, terminating with enlarged mesenteric glands and other symptoms of the scrofulous diathesis, are in subjects whose diet has been deficient of oily material; and a most important indication of treatment is to supply this want by a cautious use of butter and other oily nutriment.

Dyspeptics, restricting their diet to a very limited variety, almost invariably avoid oily food, and imperfect calorification constitutes a prominent feature of the disease.

So, in protracted cases of typhus, the pale cold skin and extreme debility doubtless are, in part, owing to this cause. Patients accustomed to a free use of calorific nutriment, when attacked with this disease, are usually allowed no food of oily nature. If broths are directed, the nurse is careful to skim off all the grease; while the symptoms of imperfect calorification are combated by stimulants and other medication, instead of supplying the system with its natural fuel, calorific food.

THE CONDITION OF THE NUTRITIVE FUNCTION IN DISEASES.

The various derangements of this function constitute, in many diseases, the most prominent symptoms. In febrile diseases, especially, the secretions are sometimes morbidly increased, but more commonly diminished or suspended. Commencing with the primary

organs of digestion, the salivary secretion is diminished, and the tongue, with the whole interior of the mouth, is dry. The secretions of the stomach are similarly affected. As described by Dr. Beaumont, "in febrile diathesis, or predisposition, from whatever cause—obstructed perspiration, undue excitement by stimulating liquors, overloading the stomach with food—fear, anger, or whatever depresses or disturbs the nervous system—the villous coat becomes sometimes red and dry, at other times pale and moist, and loses its smooth and healthy appearance; the secretions become vitiated, greatly diminished, or entirely suppressed; the mucous coat scarcely perceptible; the follicles flat and flaccid, with secretions insufficient to protect the vascular and nervous papillæ from irritation." . . . . "These diseased appearances, when very slight, do not always affect, essentially, the gastric apparatus. When considerable, and particularly where there are corresponding symptoms of disease, as dryness of the mouth, thirst, accelerated pulse, &c., no gastric juice can be extracted, not even on the application of alimentary stimulus. Drinks received are immediately absorbed, or otherwise disposed of; none remaining in the stomach ten minutes after being swallowed. Food, taken in this condition of the stomach, remains undigested for twenty-four or forty-eight hours, or more, increasing the derangement of the whole alimentary canal, and aggravating the general symptoms of disease." (*Beaumont's Observations.*)

The biliary secretion is diminished, increased, or vitiated. The eliminating functions—defecation, perspiration, and the urinary secretion—are more or less affected. In some way, in almost all diseases, the action of the nutritive apparatus is disturbed by manifest disorder in some of its various organs; and the symptoms caused by this disorder often constitute the most important indications for treatment.

The causes of this disorder are, in many cases, to be traced to a habit of hurried, frequent, or irregular eating, an excessive use of drinks, improper food, or other errors of diet, which have been already noticed; and, in the treatment of disease, the first indication often is to correct these errors.

GENERAL PRINCIPLES FOR THE DIET OF THE SICK.

In sickness, as in health, the dietetic management should be adapted to engage the appropriate and harmonious action of all the

organs of nutrition. The reciprocal influence of these organs on each other, and the disorder of the whole machine produced by derangement of a single part, should be duly considered.

Too little attention is given to the indications afforded by the *salivary secretion.* The importance of this secretion need not be argued. The position of the salivary glands, at the entrance of the alimentary canal, and their large size in all the higher orders of animals, clearly evince some important office in the digestive function. In febrile diseases, the general dryness of the tongue and whole interior of the mouth is noticed as a symptom; but, instead of solid food, to encourage the secretions about the mouth, too commonly the patient is fed on gruel, rice-water, and other slops. The rational, natural remedy for this symptom—the use of the primary parts of the digestive machinery—is thus neglected.

There is also a similar neglect of the *secretions of the stomach;* indeed, they hardly seem to have been a subject of distinct practical consideration. The indications afforded by the liver, the kidneys, and the skin, are sedulously watched, and a suspension or disorder of their secretions is treated with appropriate medication; while the secretions of the stomach, certainly no less important, are scarcely made an object of special treatment. The suppression of any natural secretion or habitual discharge usually causes serious results. Surely, therefore, the suspension of the flow of gastric juice, the ordinary quantity of which is estimated at sixty or eighty ounces in a day, must be productive of injurious consequences. Disorder in this large central organ of digestion—this great centre of nervous sympathy—is quickly felt throughout the system.

Our system of therapeutics is, therefore, incomplete without principles for the special treatment of the secretions of the stomach. Doubtless, however, the alteratives prescribed to regulate the liver and other secretory organs have some direct influence on the stomach; and they also indirectly affect the stomach by their action on the other organs, such is the connection and reciprocal relation of these parts.

It is, moreover, obvious that the course of diet commonly recommended in diseases is ill adapted to regulate the gastric action and restore its natural secretion. Indeed, the frequent irregular slop diet often employed could hardly fail seriously to derange the digestive function in persons of most robust health.

Loss of appetite is one of the most common symptoms of disease. It occurs almost invariably on the attack of all acute febrile dis-

orders. With this loss of appetite there is a general failure or disorder of the secretions connected with the digestive function; the tongue and mouth are red and dry, the gastric secretions are suspended, and, if food is taken, it remains in the stomach undissolved.

Under such circumstances, in slight cases of temporary febrile excitement, strict abstinence from food for a short period will generally restore the appetite with the digestive powers. Though many persons advantageously adopt this plan, I feel assured that such cases of temporary illness pass off more kindly when a little food is taken at the accustomed times of meals.

In cases of more persistent character, as typhus and other continued fevers, the propriety of giving food in the early stages of disease is sometimes doubted. The appetite is regarded as nature's proper guide; and the general principle is maintained, that, with the suspension of the gastric secretions, the stomach loses its digestive powers, and food can only prove a cause of irritation. This reasoning has led to most erroneous dietetic management. The suspension of the gastric functions, with the loss of appetite, is a condition of disease, and, like other morbid symptoms, requires remedial treatment. The rational management of disease chiefly consists in obviating the various morbid symptoms. The general disorder of the system is relieved, as the several organs of secretion—the liver, kidneys, skin, &c.—are successively restored to healthy action. Why, then, should the secretions of the stomach, that most important organ, be neglected?

In diseases generally, a return of appetite is regarded as a favorable symptom, indicating a returning healthy action and condition of the stomach; and the plan of dieting, to explain which is a main object of this report, has at least this merit—it almost invariably restores the appetite in the early stages of disease, and, even in most severe protracted cases, sustains it throughout their progress.

This plan consists mainly in a cautious, regular administration of food at the times of previous customary meals.

Dr. Beaumont, in experimenting on his subject, St. Martin, found that the flow of gastric juice was excited by irritating the mucous membrane of the stomach with a glass tube or metallic sound. Other observers have succeeded in obtaining little gastric juice by this means; and Prof. John C. Dalton, in an able paper "On the Gastric Juice," as the result of experiments on dogs, states that "the only proper method of obtaining this is to present to the stomach

its natural stimulus, viz: the food which its secretion is intended to digest." (*Am. Journ. of the Med. Sciences*, 1854.)

It is a systematic use of this "natural stimulus," on rational principles, which constitutes the object of the following rules for the diet of the sick:—

1. On the principle already noticed, of the reciprocal influence of the several digestive organs on each other, *the food should be completely masticated and insalivated before passing into the stomach.*—Food, without this preparation, is not the "natural stimulus" of the stomach. Solid food is, therefore, to be preferred; and a small cracker, or a piece of dry toasted bread of equal size, is commonly, in the commencement of febrile disease, amply sufficient for a single meal.

2. *Food should be administered at regular times, corresponding with the previous habits of the patient.*—This obvious rational principle was taught by the venerated Hippocrates, though most strangely neglected since his day.

The influence of habit on the functions of the body, in health, is well known, and in disease this influence may be advantageously employed. The digestive organs will respond to stimulus more readily at their wonted periods than at other times; and the object of food in incipient febrile disease is more to encourage this habitual action—to restore and sustain the appetite and the natural digestive secretions—than to supply the wants of the system. For this object a very small quantity of food is required, and a large quantity only oppresses the stomach, and causes general disorder.

The continued moderate use of tea and coffee commonly aids to encourage this habitual action. Persons in health, who have been long habituated to these beverages, cannot be suddenly deprived of them without feeling serious inconvenience; and the want of them, at accustomed times, often occasions much uneasiness to the sick. The abstract question of the general utility of these beverages need not be here considered. By many patients, their customary use has rendered them essential accompaniments of digestive action, and almost necessaries of life—if not a natural, an habitual stimulus of the digestive organs. Though in the commencement of disease all appetite for them is lost, to the patient who has been accustomed to two cups of coffee in the morning, and two of tea at night, a single cup or less should be enjoined with his small allowance of dry food.

The physician, in his first visit to a patient, should, by particular

inquiry, learn his dietetic habits, and give them due consideration in directing the appropriate regimen for the case.

3. *No solid or liquid food should be allowed between the times of meals.*—The neglect of this precaution constitutes a most common and injurious error in the dietetic management of disease. In health, the "little-and-often" plan of feeding will almost invariably disturb the digestive action and destroy the appetite; yet, in sickness, this most irrational plan, which will make a well man sick, is commonly pursued.

Jellies, sweetmeats, saccharine fruits, and other delicacies, furnished by the kind offices of friends and neighbors, do incalculable mischief in the sick-room, and should rarely, if ever, be allowed, except as part of regular meals. Tea and coffee are often taken at times and in quantities to which the patient has in health been unaccustomed—sometimes as the common drink. Thus used, they not only disorder the digestive function, but, from their nervine effect, sometimes for whole nights deprive the sick of sleep.

But the most common error in this way is the use of rice-water, toast-water, lemonade, tamarind-water, and other simple nutritive drinks. Increase of thirst is one of their unpleasant effects; and their frequent use is almost necessarily incompatible with appetite and healthy digestive action.

It is not duly considered how small a quantity of nutriment will disorder the gastric functions in febrile diseases. Even the little saccharine matter contained in a simple sweetened drink sometimes will have this effect; and when, in fever, the want of appetite continues obstinate, the difficulty often may be traced to some aromatic or bitter infusion richly charged with sugar. So often has my treatment of a case been foiled by some such drink, which patients and attendants have thought simple and perfectly harmless, that for years it has been my almost invariable practice, during the first few days of fever, until the appetite is restored, strictly to proscribe all drinks between meals, except pure cold water.

4. *Medication should be directed with a view to aid, and not impair, the appetite and digestive action.*—Without regard to this precaution, the purpose of restoring the appetite and sustaining it during the progress of disease will often fail. Medicines nauseous to the taste, given just before eating, will sometimes effectually destroy the appetite for food. Thus, medicines appropriate to a case may do more harm than good, if given at improper times. Quinine and other bitter tonics, judiciously employed, invigorate the digestive organs

and improve the appetite; but for this purpose they are best administered with the food. Their action and the stimulus of food then coincide; but given between meals, or even a half hour or hour before the food, they often spoil the appetite.

5. *The diet of the sick should be often varied.*—Variety of diet is important, both in health and sickness. The appetite, in health, fails under a long-continued use of one kind of food; and in sickness it is best sustained by frequent change. In the incipient stage of all febrile diseases, the diet should be light and simple, such as dry toast, crackers, or other solid food of moderately nutritive quality. The return of appetite indicates increasing tolerance of the stomach, and calls for a greater range of diet. The general quality of diet should, then, be different, according to the character of the disease.

In cases of entonic phlogistic character, such as phrenitis, pneumonia, and other inflammatory diseases, food of the lightest nutritive quality should be continued. Full nutrition, in such cases, is injurious; but as febrile action is always aggravated by the suppression of any natural secretion or habitual discharge, the secretions of the digestive organs should be encouraged by the regular use of light innutritious food. The dry red gastric mucous membrane, no less than the hot dry skin, requires correction.

THE TWO OBJECTS OF FOOD IN SICKNESS.

The great object of food, in health, is the nourishment of the body; but in sickness the digestive organs often are incapable of their natural function. In sickness, therefore, two objects of food should be considered.

1st. The regulation of the digestive function.

2d. The nutrition of the system.

This distinction should be clearly understood, as requisite for the proper dietetic management of disease. Without distinct careful attention to this first object, especially in the early stages of disease, the nutrition of the system sometimes fails, however great the quantity of food ingested.

This use of food is not duly understood—to excite and regulate the gastric action—to restore the various secretions connected with the digestive function, and thus to obviate the disturbing influence of suppressed secretions. On the effects of this disturbing influence is founded the popular notion of giving food "to prevent wind

from getting into the stomach." Fasting, by withholding the natural stimulus of the gastric action, in most persons causes headache; and this symptom, so common in febrile disease, is often owing to want of action and secretion in the stomach. Indeed, the cerebral symptoms occurring in most diseases are caused, or at least aggravated, by disordered action and secretion of the digestive organs.

Even, therefore, in violent cases of phrenitis, and other inflammatory diseases, the appetite, that index of the condition of the stomach, should be sustained, though its free indulgence in such cases would be most injurious. Increased nutrition is not required—there is already excessive plethora, and even depletion may be needed; yet food—light nutritious food—should be regularly administered, to promote natural digestive action and secretion, and to obviate the general irritation which necessarily results from suppressed natural secretions.

In diseases of an opposite character, attended with a general wasting debility, food is required for a twofold purpose—to sustain and regulate the digestive action, and also to support the strength and repair the waste of body. In such diseases, whose dangerous tendency is to general inanition and exhaustion, the nutrition of the system is the prominent indication. In the early stages, a main object of treatment is to regulate and invigorate the digestive organs. A great danger is that these organs, partaking of the general systematic weakness, will fail duly to perform their office in the advanced low stages, when nutrition is most needed. The restoration of appetite, commonly at first wholly lost, is an important point to gain. When once restored, with proper management it can, in most cases, be sustained throughout the progress of disease.

The return of appetite calls for a varied nutritious diet, consisting in part of different kinds of solid animal food, the quantity and quality being cautiously regulated by the tolerance of the stomach. The continued use of solid food is preferable to broths and other liquids. Dyspeptics find by experience that their weak stomachs digest solid meat easier than broths; and in typhus fever, dysentery of typhoid tendency, and other lingering wasting diseases, the system is best supported by a diet chiefly of solid food. Indeed, the appetite, either in health or sickness, rarely can be long sustained wholly by liquid nutriment.

Physicians with whom I meet, are sometimes shocked with the

idea of allowing beefsteak, mutton-chop, and other sold meats, in the low stages of typhus fever and typhoid dysentery. But are we in such cases to fear too much nutrition of the system? Surely the frequent feeble pulse, the pale cold skin, the progressive emaciation, and general debility, and other symptoms, are not usual signs of overfeeding. Distinction is not commonly made between the immediate effect of food upon the stomach, and its ultimate effect upon the system—between the two objects of food before considered. Food, strongly needed for the nutrition of the system, may most injuriously disturb the organs of digestion. In incipient febrile disease, while the dry red gastric mucous membrane refuses to secrete, the ingestion of solid meat would be perfect rashness. In advanced stages, its disturbing effect would be still more injurious, unless the digestive organs have been previously regulated and disciplined to natural action, and to a tolerance of such food. The neglect of this disciplining process to secure the tolerance of a diet which the nutrition of the system needs, in low wasting febrile diseases, is a common and most fatal error of practice.

If this regimen—this disciplining process—is neglected to an advanced stage of disease, the patient being fed irregularly on slops, or scarcely fed at all, the use of solid food must be commenced with great caution. Under such circumstances, the whole alimentary mucous membrane becomes extremely irritable, sometimes continuing dry, and sometimes alternating between dryness and vitiated secretion, and the digestive powers are almost lost. The system is suffering from want of nutrition, but the debilitated digestive organs are unable to perform their office. The favorable time for disciplining the organs to regular action has passed by. Yet even now this disciplining process must be commenced with minute quantities of dry food. A small cracker may exceed the tolerance of the stomach; but, however small the quantity, the digestive process should be attempted only at regular times of meals. Hurry to supply the wants of the enfeebled body will only overload the stomach, delay the return of appetite and regular digestive action, and produce general irritation throughout the system. Commonly, however, even at this late period, a cautiously regulated diet, within two or three days, secures an appetite, with a condition of the stomach to receive a greater quantity and variety of food.

RULES FOR THE DIET IN PARTICULAR DISEASES.

The exposition already given of the general principles for the diet of the sick, renders unnecessary detailed specific rules for each particular disease.

In all diseases, food should be taken regularly three times a day, or at times corresponding with the previous habits of the patient. The enforcement of this rule is often difficult when there is no appetite, but an absolute loathing of all kinds of food; yet, the omission of a single meal seriously hinders the restoration of appetite, and of the regular habitual action of the digestive organs. Even if food is rejected from the stomach immediately after its reception, its effect upon the salivary secretion, and its slight impression on the stomach, aid to restore the natural function. However minute the quantity of food, the regular ceremony of eating—the employment of the masticatory and salivary organs—tends to engage, in associated action, the whole machinery of digestion.

Strict caution, also, is required to prevent the disturbance of this habitual natural action, by the least quantity of solid or liquid nutriment between the meals. Toast water, rice water, lemonade, and other sweetened drinks, jellies, and other usual dietetic fixtures of the sick-room, must be definitively proscribed.

When practicable, moreover, solid food should be preferred to liquid. In the early stages of febrile diseases, before the salivary and gastric secretions are restored, light solid food, such as dry toast and crackers, should constitute the principal diet; in the advanced stages, when a more varied and nutritious diet is needed, solid meat is preferable to broths.

These simple rules, which already have been explained, we regard as applicable to all diseases; and their strict observance is ordinarily indispensable to the preservation of appetite and natural digestive action.

Still further, however, to explain this general subject, the particular dietetic management of a few common diseases will be noticed, with a brief detail of cases.

The Diet in Dyspepsia.

Erroneous habits of diet are admitted to be the most common cause of this disease. The particular errors to be usually noticed

are hurried eating, eating at irregular times, a frequent and excessive use of drinks, and a restricted variety of food.

Some cases are induced by the habitual use of alcoholic stimulants—also of opium, and other narcotics.

Tobacco is one of the common causes of this disease. This article is injurious, not simply on account of its narcotic properties, but perhaps chiefly by its action on the salivary organs. It not only increases the flow of saliva, but also weakens and vitiates its quality; and, by inducing frequent spitting, it causes the waste of this important natural solvent of the food. If the victims of this narcotic weed cannot be persuaded to forego its use, they should learn, as the less of two evils, to swallow the saliva with the nauseous juice.

Much injury is also done by popular domestic remedies. Many cases of dyspepsia are caused and aggravated by the common use of alkalies, both as substitutes for yeast in cookery, and as remedies for acidity of stomach. They give temporary relief by neutralizing acid in the stomach, but their free use is sure to increase the acid secretions.

A respectable physician of my acquaintance died a miserable dyspeptic, who, in early life, commenced this treatment of himself by the advice of a medical preceptor. The *vis medicatrix naturæ* obstinately contended against this unnatural practice, until the stomach became an enormous acid laboratory. For years before his death, he often purchased twenty pounds of carbonate of soda at a time, mostly for his own use; yet he constantly complained of acid stomach.

A common tendency in dyspepsia is to restrict the diet and the digestive powers. Patients select some favorite article of food, and make it their chief diet, until offensive satiety is induced. Some other article is then chosen, and in its turn rejected. Thus, various kinds of food successively are found to offend, until the diet is restricted to very narrow limits. The digestive organs are of course continually becoming weakened, for frequent change of diet is needed for their requisite variety of exercise. In such cases, the powers of body and of mind are commonly alike restricted. The patient's thoughts are constantly on his stomach. His great inquiry is, what he can safely eat; or, perchance, he is just discovering the true course of diet which will suit his case. The capricious whims of the mind are no less obstinate than the bodily disease.

The authors of some popular treatises on dyspepsia have been themselves miserable subjects of the disease, who have watched the operations of their own disordered stomachs, and drawn therefrom general rules for managing the digestive organs. The influence of these treatises has been decidedly pernicious. They abound with cautions against common articles of food, and enjoin a restricted course of diet, which would soon cause dyspepsia in persons of the strongest digestive powers. Indeed, any one who commences watching the operations of his own stomach, and selects his food with scrupulous anxiety, is almost sure to become a dyspeptic.

The great indication in the treatment of dyspepsia is to improve the digestive function. This is to be performed in part by medication. But simply palliative remedies, given to obviate particular symptoms, only disappoint the patient's hopes, and prolong his sufferings. Medication, to be of permanent benefit, must change the condition of the digestive organs, and increase their capability and powers.

The main reliance, however, for a cure is on appropriate diet. Like all the animal organs, those of digestion are to be invigorated by proper exercise; and their appropriate natural stimulus is food. The general principles for the regulation of the diet, already explained, are particularly applicable in this disease.

The leading principle is to be observed, that each and all of the organs of nutrition should perform their appropriate parts in harmonious concert. All the digestive organs are to be employed, and their secretions promoted by a regular and varied diet. Regular meals taken slowly and with perfect mastication, a rigid abstinence from drinks, and a cautiously increased variety of diet, constitute a simple prescription for dyspepsia, which, with appropriate medication, will rarely fail.

Instead of a definitely prescribed course of diet, the patient should be encouraged gradually to train the digestive organs to the use of all common kinds of food. Plain and easily digested food should be at first selected, but with frequent change, avoiding the continuance from day to day of any one favorite dish. The weak and irritable organs must not be suddenly crowded and disturbed by unaccustomed food, but articles which prove offensive, and cause uneasiness, instead of being discarded, should be again and again tried, until the intolerance of the stomach yields. No case of dyspepsia is to be considered as cured, until most common kinds of food are relished and eaten without inconvenience.

The Diet in Phthisis.

Phthisis is particularly characterized by a deficient and depraved nutrition of the system. It is, in most cases, dependent on a hereditary constitutional predisposition, the signs of which are commonly evident at a very early age. Among the earliest of these signs is a general imbecility of the digestive organs, manifested by a deficient, irregular, and fastidious appetite, with irritability and frequent disorder of the intestinal canal.

Connected with this imbecility is the aversion to oily food, already noticed in this report as a most common sign of predisposition to tuberculosis.

This imbecility of the digestive organs occurs as an effect or constituent of the congenital dyscrasy of the scrofulous constitution, being thus manifested in whole families; it likewise becomes a cause of the development of phthisis, the weak and imperfect digestive action not affording a due supply of healthy nutrient material. It constitutes, also, a main indication for treatment, both for the prevention and cure of this disease.

Though this predisposition is manifest at a very early age, tuberculosis commonly is not developed until after many years. A long period is, therefore, afforded for preventive treatment, and if due attention were early given to the invigoration of the digestive organs, by appropriate medication and diet, we may confidently believe that, in a great proportion of cases, this predisposition might be obviated. Numerous patients who, in infancy and early childhood, showed positive indications of hereditary scrofula, whose parents and other relatives had phthisis, I have kept for years under a course of iron and other tonics, with occasional alteratives, and with a carefully regulated, varied, generous diet, until they have now every appearance of perfect health. Many of them, I have no doubt, but for this precautionary management, would, ere this, have died with phthisis.

It is an established pathological truth that phthisis is sometimes cured, even in advanced stages, after the formation of large tubercular excavations.

An interesting case recently terminated under the observation of the writer. A gentleman, who died at the age of eighty-four, came under my care about thirty years since. He then had a large excavation in the upper part of the left lung, and it was stated that about ten years previously he was supposed to be in the last stage

of phthisis, to which disease there was a family predisposition. This excavation, therefore, undoubtedly existed about forty years, during which period he constantly had cough, and occasionally profuse purulent expectoration, especially during the last four years; but most of the time he enjoyed tolerably good health, though almost the leanest subject I ever knew. The excavation, which I had watched with much interest for thirty years, was found, after death, to be of the capacity of four or five ounces, and lined with a smooth, red, well-formed mucous membrane—the cavity opening into the trachea by several smooth regular passages, one of them large enough to admit the handle of a scalpel. There was, also, a large recent excavation in the right lung, with several small suppurated tubercles in both lungs. The habits of this patient had been remarkably regular; he was a prudent, free, good liver, eating freely of fat meats, and a full variety of food, and using wine and other stimulants moderately and temperately. Much of the time, also, during this long period, he was under a course of iron, cinchona, and other tonics.

About five years since, I was called to visit a poor Irish woman, thirty-six years of age, who had been confined to the bed mostly for some months. She had cough, profuse purulent expectoration, chills, night-sweats, pulse 120, respiration 36, and a large excavation under one clavicle. She had never eaten fat meat, and for the last two years, partly from pecuniary want, and partly from gradual loss of appetite, she used no animal food, and had no regular meals, but habitually drank largely of tea and cold water. A supply of good sperm oil was procured, a tablespoonful of which was administered after every meal; three daily regular meals of solid food were enjoined, with a very limited use of drinks. The tone and capability of the digestive organs improved rapidly, the variety and quantity of food were gradually increased, an appetite for fat meat was acquired, the cough and expectoration diminished, and within four months all signs of tubercular excavation disappeared. The patient is now a healthy woman.

Other cases might be cited of cure after unequivocal signs of tubercular excavation—several in which autopsy revealed cicatrices where excavations had been discovered by stethoscopic examination. But such cases are, at this day, not uncommon occurrences in pathological investigations. A cure, however, under such circumstances is so uncommon, that tubercular excavation usually compels an unfavorable prognosis.

But such cases certainly warrant a reasonable expectation that phthisis, in its early stages, may be often cured. Indeed, without reference to such facts, the consideration that scrofulous swellings, in the neck and other parts of the body, are commonly cured, would lead to a rational conclusion that tubercles in the lungs are not incurable. There is no region of the body in which common phlegmonous inflammation progresses more rapidly to resolution than in the lungs. Why, then, should scrofulous inflammation in the lungs be less curable than in other parts?

The following case is an instance of remarkable recovery under a course of regular generous diet, with tonic and alterative medication:—

In November, 1847, I was called to visit Miss C. V. R. E., aged 22, an orphan daughter of a distinguished medical professor. For more than a year she had been affected with cough and expectoration, which was now decidedly purulent; she had chills, night-sweats, occasional hæmoptysis, fetid breath, pulse 120 to 136, respiration 30 to 40, and œdematous limbs. Menstruation had been suspended several months; and now for some weeks she had suffered much from scrofulous inflammation of one knee, which alone would have given the case a formidable aspect. She had for nearly three years eaten no meat, and had never used fat meat; she habitually drank freely of cold water, and, as a climax of error, she had now been for some months under homœopathic treatment.

The possible effect of correcting these errors, and the consideration that no efficient medication had been tried, afforded almost the only ground of hope. Three daily regular meals, with a small quantity of meat at dinner, and a restricted use of drinks, were advised. She replied that the least quantity of meat invariably caused her most excruciating pain, but yielded a promise to try a minute portion the next day. On my succeeding visit, she informed me that the use of meat was impossible—the little taken, according to promise, having caused a "perfect agony" in the region of the stomach for three or four hours. I told her plainly that without animal food her case was hopeless, and extorted a promise that she would each noon use a portion of lean meat the size of her thimble, masticating it thoroughly, and taking with it little or no drink. She resolutely persevered, suffering each day "perfect agony" from this minute bit of meat, during the usual time for its solution in the stomach. This painful effect, however, within a few days became less severe, and before many weeks both lean and fat meat were

used freely without inconvenience. The variety of diet was gradually increased, so as to include all common kinds of food.

A preparation recommended some years since by Prof. Samuel Jackson, of Philadelphia (℞.—Hydrarg. deutiodid., potassii iodid., āā grs. x; aquæ ℥j. M.), was prescribed, in doses of five or six drops three times a day, and continued nearly three months. At the same time, iron was given three times a day; and afterwards, for several years, iron, quinine, and other tonics were successively employed. This constituted almost the whole medication.

In such a case, a speedy cure could not be expected; but the scrofulous inflammation of the knee slowly subsided, the voice was restored after a continuance of aphonia nearly two years, there was a gradual abatement of the cough and other pulmonary symptoms, and the young lady, after becoming blessed with tolerable health, was married nearly two years since, and now has an additional blessing six months old.

In most cases of phthisis, and of predisposition to it, among other errors of regimen, four may be prominently noticed:—

1. *Irregular eating.*—Patients often have no appetite in the morning, defer their breakfast until late in the forenoon, and have no regular times for meals. In many cases, the want of regular meals leads to the additional error of taking frequently and irregularly small quantities of light food, such as jellies, custard, arrowroot, &c. Whenever a case excites the sympathy of friends and neighbors, the little delicacies of diet supplied by mistaken kindness are constantly disordering the digestive function. If taken at other times than meals, they effectually spoil the appetite, the maintenance of which is all-important in the prevention and cure of phthisis.

2. *A restricted variety of food.*—As in dyspepsia, the tendency to this restriction is a common difficulty. Indeed, dyspepsia—feeble and disordered digestion—may be considered as a common attendant and cause of phthisis. Particular kinds of food are avoided, as they are found successively to offend the weak organs, and thus the diet becomes confined to a narrow range. Frequent change of diet should be encouraged, in order to invigorate the digestive organs by varied exercise, and to afford a full variety of nutrient material to the system.

3. *The avoidance of oily nutriment*—an error already fully noticed in this report. Some writers have earnestly recommended a milk diet in phthisis. It may become a partial substitute for fat meat, and its common use as drink with meals is often advantageous; but

an exclusive milk diet will rarely give proper sustentation, and, like other nutrient substances, if used between meals, it disorders the digestive function.

4. *An excessive use of drinks.*—Most children predisposed to phthisis are often resorting to the pitcher of cold water—a habit which should be carefully restrained; and patients, in the progress of the disease, usually have inordinate thirst, the indulgence of which impairs the appetite, vitiates the salivary, gastric, and other secretions concerned in digestion, and, by dilution, weakens the nutrient properties of the food. Excessive drinking thus becomes an efficient cause of the deficient and depraved nutrition which essentially characterizes phthisis.

So common are these four errors of regimen in the phthisical constitution, yet so much overlooked, that, in consultation, I often find them all associated in a patient, yet wholly unnoticed by attending physicians. Though I would by no means discourage or undervalue medication, I firmly believe that if due attention were given simply to the correction of these errors, even with no medication, more could be accomplished, in the prevention and cure of phthisis, than by the most efficient medication without attention to dietetic regimen.

A common error in the treatment of phthisical subjects, is to prescribe for particular symptoms, instead of attending to the disordered nutritive functions, and the general condition of the system. The cough, for instance, is treated with opiates, expectorants, various popular syrups, and other palliatives, which, as commonly managed, often do more harm than good, by impairing the appetite, and disordering the digestive function. Sometimes the throat is made the great object of treatment—the uvula and tonsils are excised, and caustic washes and various inhalations, gargles, &c., are applied. Though these local difficulties often require attention, and may sometimes be primary lesions resulting in the development of phthisis, commonly they are only symptoms or incidental circumstances of the constitutional disease.

The great indication in phthisis is to improve the nutrition of the system—to regulate and invigorate the digestive organs by alteratives and tonics, to sustain the appetite, and to supply a regular nutritious and oleaginous diet, varied by the successive use of all common kinds of food—in short, to keep the nutritive apparatus in order, and give it suitable employment.

The Diet in Typhus Fever.

There is no disease in which a judiciously regulated diet is more important than in typhus. Neither of the two great objects of food —the regulation of the digestive function, and the nutrition of the system—can be neglected without injurious consequences. If the digestive function is not properly regulated, the common consequences are want of appetite, often an absolute loathing of food, vomiting, diarrhœa, pain and soreness in the abdomen, and, in some cases, tympanites. So, if adequate nutriment is not supplied, in the latter stage of the disease, a feeble pulse, a pale cold skin, extreme debility and general emaciation—the usual symptoms of inanition—are necessary results.

Although in typhus, as in other febrile diseases, loss of appetite, with suspension of the salivary, gastric, and other secretions, commonly occurs, yet, in some cases, if the appetite is encouraged early by a continued regular use of food at customary times, it need not be wholly lost. Unfortunately, however, a physician usually is not called until the times for several meals have passed without any nutriment. Consequently, the digestive organs, their natural stimulus being withheld, cease to perform their accustomed offices; their secretions are suspended, the appetite is lost, and these organs, especially the gastric mucous membrane, become irritable and inflamed.

The important indication is now to obviate this morbid condition of the digestive organs, and to restore their natural action. The means required are alterative medication and a regular use of food.

Calomel, in one full dose, or in frequent small doses, is often useful. In some cases, an emetic of ipecac has a salutary effect. The operation of small alterative doses of this medicine on the skin is well known, and for a similar operation on the mucous membranes, to obviate their dry, irritable, inflamed condition, commonly no remedy is more useful. The physician learns, by observation, the particular alterative medication appropriate to the epidemic character of each season.

At the same time, a small quantity of dry, moderately nutritious food, such as dry toast or crackers, is to be used at regular times of meals, thorough mastication and insalivation being enjoined. Without this natural stimulus of the organs, the appetite—the natural index of the condition of the digestive function—can hardly be restored. The previous habits of the patient as to times of eating,

and the use of coffee, tea, and other drinks with meals, are to be inquired; and the natural action of the digestive organs is to be encouraged by a cautious continuance or imitation of the regimen customary in health.

The utmost caution is required not to disturb the digestive action by nutriment, liquid or solid, between the regular meals. Tea, coffee, toast-water, rice-water, sweetened drinks—all drinks containing any nutriment—must be explicitly prohibited, except with meals, and, to guard against error on this point, it is commonly prudent to allow no drink between meals, except pure cold water. Even the free use of water, by substituting extraneous liquid for the natural secretions, tends to diminish the secretory action, and prevent an appetite. On no account should meal time be passed without food, and the physician, in his daily visits, should particularly inquire what food is taken.

With this treatment, commonly within two or three days, the appetite is restored, the action of the digestive organs being regulated, and their capability increased.

The other object of food—the nutrition of the system—is now to be considered, for, in the advanced stages, inanition is a common danger. In most cases, simple, dry, farinaceous food is the best diet for several days after the return of appetite; then a little meat should be allowed with dinner, and afterwards with breakfast. As the appetite and digestive action are best sustained by frequent change, different kinds of meat, fish, &c., both fresh and salted, and variously cooked, should be used successively.

A few weeks since, I was called at noon to a young man who had been nearly two days sick with typhus. The skin and tongue were dry, pulse 120, pains in the head, back, and limbs, with other usual symptoms. Food had been almost wholly omitted, and the appetite was lost. An infusion of a half grain of ipecac every two hours was ordered, and a powder of calomel gr. vj, with Dover's powder gr. viij, to be given at bedtime. The patient had been accustomed to coffee in the morning, and tea at night. A small piece of dry toasted bread was directed for dinner, a cracker with a cup of tea for supper, and a piece of dry toasted bread with coffee for breakfast. Calling the next noon, I learned that the patient had a restless night, refused food in the morning, and had taken a thin gruel for drink during the forenoon—circumstances which will commonly postpone the restoration of appetite at least twenty-four hours. The nurse, however, a woman with whom he boarded,

thought it absurd to expect an appetite in fever. The ipecac was continued, with the diet directed the previous day, and all drink between meals was proscribed, except an occasional spoonful of cold water. A Dover's powder was ordered at night. The next morning, coffee and a little dry toast were taken without reluctance. At noon, a cracker, and a piece of smoked beef, the size of a half dollar, were eaten with relish; and, from this time, food was taken regularly three times a day, a little meat being allowed with dinner, and, after several days, with breakfast. On the fifth day, a grain of quinine, in a teaspoonful of acidulated water, was directed with each meal; the ipecac was only used occasionally when the skin was dry, and a Dover's powder at night, if required to procure sleep. This constituted almost the whole medication in the case. The patient was not disturbed at night for medicine, and, after a few nights, dispensed with the Dover's powder—the appetite continued regular, defecation appeared perfectly healthy, and though the fever continued nearly four weeks, the patient, after the first week, was comfortable, and able to sit up several hours each day.

A young lady is now convalescing from typhus, whose two sisters had been under my care with the same disease last autumn. Before I was called, the general course of diet directed during the sisters' illness was commenced, and there has been no day a total loss of appetite—no regular meal has been omitted, and, since the first few days, solid meat has been a part of the daily diet. A single dose of calomel, with Dover's powder, the night of my first visit; alterative doses of ipecac regularly the first few days, and afterwards occasionally; a Dover's powder, at bedtime, when required; and, after the first week, one grain of quinine with each meal, have been the only medication.

In February, 1851, I was called to attend a young Irishman who had been five days sick with typhus. He had no appetite, but was frequently drinking tea, milk and water, and oatmeal gruel. He was nursed by a sister who claimed much experience in the management of the sick, and who constantly sneered at my expectation of maintaining an appetite in fever. From day to day I perseveringly enjoined a regular course of diet, giving particular directions for the kind of food each meal; but, disappointed with the continued want of appetite, I tried in vain to learn the cause of failure. I was assured that no nutritious drinks were given between meals, but that the patient could not take solid food at meal times, as directed. The symptoms, though at first mild, con-

tinually grew worse—vomiting, occasional diarrhœa, tympanites, and general nervous disorder, with progressive emaciation, coldness, and debility. Happening to call one day as the nurse was giving a drink of milk and water, I spoke sternly of this non-observance of my orders. She petulantly replied: "I have given him milk and water every day, whenever he would take it, and had I followed your directions, he would, before now, have starved to death." The secret was now out, but too late; the patient died soon after, three weeks from my first attendance.

In other cases, by similar mismanagement, my treatment has been balked, particularly in families where I have not been the usual medical attendant; yet, notwithstanding popular prejudice against solid food, and in favor of the "little and often" plan of dieting, for years I have succeeded, certainly in nine cases out of ten, in sustaining an appetite and regular use of food throughout the course of fever.

The two following cases of typhus show the efficacy of a regular diet of solid food, in exciting the habitual or automatic action of digestion, especially the motions of mastication, during almost total loss of sensorial power.

November 8, 1851, and several times subsequently, I visited Judge C., of Cheshire, in consultation with Dr. A. J. Driggs. He had been sick about one week, but under the judicious management of his attending physician a good appetite was preserved, and he regularly ate solid food. For weeks, the pulse was never less than 120, and the nervous symptoms—subsultus, muttering delirium and coma—were uncommonly severe. The case was very protracted, the occurrences of full seven weeks being wholly obliterated from memory on recovery. But the digestive function hardly seemed disordered—no vomiting, diarrhœa, tympanites, or other abdominal symptoms occurred; bread, crackers, beef, mutton, and other solid food were uniformly masticated, and evidently relished; and when there were scarcely any signs of consciousness, as meal times approached, he often grumbled that "dinner was not ready." Had the nutritive function of this patient failed, with the general loss of nervous power, the case must have terminated fatally; and I have no doubt his life was sustained and saved by this regular course of diet.

October 10, 1853, R. B. B., a young man, aged twenty-two, came under my care with typhus. He had been sick several days, but his mother, an intelligent judicious woman, in whose family I often

had attended, took care to sustain the appetite by regular nourishment. The case was, from the first, severe, and symptoms of nervous depression, coma, muttering delirium, and almost total deafness, came on unusually early. October 21, severe purpura supervened—the gums and nostrils bled profusely, almost the whole roof of the mouth was ecchymosed, and petechial spots appeared upon the breast and other parts of the body. Dr. D. A. Tyler now attended in consultation. The patient continued to bleed about five days, necessarily lying on the side to prevent the blood from flowing into the throat. Afterwards, the gums and teeth remained covered with a dark sordes; the eyes suffused, deeply injected, and rolled upwards; stertorous breathing; constant subsultus, and muttering delirium; the hands picking the bedclothes and sawing the air. In this condition he never failed to eat solid food three times a day, with evident appetite, and thorough mastication. His actions, as food was brought to him, were sometimes quite amusing. He apparently fancied himself, with his mother, at a public table, politely offered to help her, and inquired "for what he should send out her plate—a piece of turkey, pig, or whatever she would choose." The good lady reciprocated his politeness by gently encouraging him to take his food; and after eating he would relapse into his stertorous breathing, coma, and muttering delirium. He recovered after a course of about five weeks. In this, as in the former case, defecation appeared perfectly healthy throughout the fever, and there was no vomiting, diarrhœa, or other usual symptoms of disturbed digestion.

The two preceding cases forcibly show the power of habit over the customary motions of digestion, during extreme depression of the sensorial powers. Let it not, however, be supposed that such cerebral disorder is common with this course of diet. From the known sympathy between the digestive organs and the brain, it might rationally be expected that the regulation of the digestive function tends to prevent cerebral disturbance; and I know that my fever patients are much less liable to headache, delirium, and other cerebral symptoms, than patients who are fed frequently and irregularly with liquid nutriment.

The published *Clinical Lectures* of the late Dr. Robert J. Graves, of Dublin, contain many rational observations on the diet in fevers. He earnestly impresses "the fact that there can be no doubt that persons have been occasionally starved to death in fever." He advises that when a patient is "laboring under the effects of fever

nd protracted abstinence," with no appetite for food, we should press it on him, and give it as a medicine;" that withholding food under these circumstances, because there is no appetite, is like 'allowing the urine to accumulate in the bladder, because the patient feels no desire to pass it." He says that "long-continued denial or want of food generates symptoms bearing a very close resemblance to those which are observed in the worst forms of typhus. Pain of the stomach, epigastric tenderness, thirst, vomiting, determination of blood to the brain, suffusion of the eyes, headache, sleeplessness, and finally furious delirium, are the symptoms of protracted abstinence."

Dr. Copland, Dr. Carpenter, and other authors, have in like manner noticed the resemblance between the symptoms of the low stages of fevers and those caused by protracted abstinence or deficient diet.

The following case was one in which life was doubtless saved by the judicious rule of Dr. Graves—when a patient has no appetite for food, to "press it on him, and give it as a medicine." The case also shows the caution with which food should be commenced, in the low stages of disease, when the digestive organs have been weakened, and perhaps inflamed, in consequence of protracted abstinence, and the necessity, in such cases, of gradually encouraging the tolerance of the stomach.

In January, 1854, an Irish lad was sick with fever, under the care of a stupid mother. Directions in regard to diet and medicines received no attention. There was no appetite; a little tea, gruel, &c., were given occasionally for eight or ten days, when even these were utterly refused. "He won't take it—he spits it right out—" were the daily replies to my directions in regard to food. Nearly three weeks from the attack, he had taken no food nor medicine—nothing but a little cold water—for five or six days, during which time he had not spoken an intelligible word. He was picking the bedclothes and sawing the air, constantly agitated with subsultus; the tongue was black, dry, and cracked; the teeth covered with sordes; the respiration infrequent, irregular, and sighing; the pulse 130 to 140, so weak that it hardly could be counted; the eyes suffused and deeply injected; and the skin cold, with livid paleness.

With these symptoms, caused probably more by abstinence than by fever, it was obvious he must soon eat or die; and to wait for appetite would be worse than folly. I toasted a small piece of bread, and crumbled it into cold water, making a thick panada,

resolving myself to "press it on him." A teaspoonful being put into the mouth, he stupidly blew it out over the chin. Failing in several like attempts, I then placed a piece of wood between the teeth, to keep the jaws apart, held the nostrils, and forced deglutition by carrying five or six teaspoonfuls well into the throat. This small quantity, however, was too much for the weak, irritable stomach, from which the whole was rejected by vomiting, in the same condition as introduced—showing the absence of liquid secretions in this organ. Three more teaspoonfuls were forced down, and suffered to remain. It was now noon. I directed nothing to be given during the afternoon except an occasional teaspoonful of water, and engaged an attendant to force down three teaspoonfuls of the panada, with an equal quantity of tea, at night, and the same amount of panada and coffee for breakfast the next morning. Calling the following noon, I went through the same process, when the stomach retained fifteen or twenty teaspoonfuls of panada, with an acidulated solution of one grain of quinine. The next night and morning, the panada, with tea and coffee, were swallowed readily. The quinine was continued with each meal, and the following noon some beef-broth, thickened with bread-crumb, was given. The patient began to exhibit signs of returning consciousness; at night, some dry toast was eaten, and from this time mastication continued to be well performed; a little solid meat was allowed each day, at first with dinner, and afterwards with breakfast, and the patient slowly convalesced.

I could adduce other similar cases of patients wrested from impending death by thus forcing a supply of food; cases, also, tending to confirm the opinion of Dr. Graves, that, in the low stages of typhus, many of the symptoms which are considered as produced by fever are really caused by abstinence. To regard the appetite as always nature's proper guide, is a most fatal error; in many cases of typhus and other diseases, to wait for appetite would be absolutely murderous.

But I would by no means undervalue the appetite in fevers. With me, a great object of treatment is to promote and sustain the appetite; and I presume that no physician feeds his patients throughout the course of fever more in accordance with this natural guide.

Inanition may result, however, not only from withholding food, but also from failure of digestive action. Nutrition is not always proportionate to the quantity of food ingested. Food which in

quantity or frequency exceeds the digestive powers, becomes a cause of irritation, deranges and perhaps suspends digestive action, and passes off with diarrhœa, thus hastening the exhaustion of the system, instead of contributing to its nutrition. A patient may thus die from inanition, while a large quantity of food is passing daily through the alimentary canal.

In the case last cited, three teaspoonfuls of panada constituted a whole meal; a larger quantity was vomited; and had it been retained, it probably would have exceeded the digestive powers, and excited diarrhœa. Frequent feeding would have tended to the same result; for healthy digestion—that which contributes most to general nutrition—cannot ordinarily be performed in fever more frequently than three times a day.

Patients are doubtless sometimes sacrificed by frequent and excessive feeding. A consideration of the two distinct objects of food in sickness, before noticed, is most important. Until the regulation of the digestive function is effected, free feeding is dangerous. But when this point is gained, and the capability of the digestive organs is restored, the nutrition of the system—an indication most important in the low stages of typhus—may be safely aided by solid meat and other substantial food. The common prejudice against such food in fevers, I feel assured, arises from neglecting this previous regulation of the digestive organs.

The following summary of cases of typhus treated by the writer during the last two and a half years, shows the results of this course of diet; affording, also, a probable general estimate of the comparative prevalence of the disease in New Haven, in the different seasons of this period:—

		Cases.	Deaths.
1852.	Last six months	41	3
1853.	First " "	24	0
"	Last " "	71	2
1854.	First " "	31	0
"	Last " "	28	3
	Total	195	8

I may add that, in the Connecticut Hospital, with this general plan of dieting, the average mortality with typhus, during the last twenty-three years, has not exceeded four per cent.; and at one period, out of 124 successive cases of this disease, only two patients died, one of whom was admitted in a dying condition.

The Diet in Dysentery.

During the period of my practice, dysentery has been one of the most prevalent diseases in New Haven, and, in the treatment of it, the general plan of diet has been the same as we have advised in typhus—in the early stages regular meals of light solid food, to regulate the digestive organs, and afterwards a more generous diet, as required for the nutrition of the system. As in typhus, the food is to be administered with much caution until the organs of digestion are properly regulated—until the salivary, gastric, and other secretions, with the appetite, are well restored. When this is accomplished, a portion of solid animal food is advantageously employed, especially in cases of a typhoid character.

But most practitioners are deterred from a meat diet in dysentery by the apprehension of increasing intestinal irritation and inflammation. Small quantities of solid nutriment are sometimes observed to pass through the intestinal canal undissolved, causing severe irritation, and perhaps fatal relapse—occurrences which are deemed decisive proof that solid animal food is dangerous. These injurious effects, however, I feel assured, are commonly owing to neglect of previous preparation of the digestive organs—to the allowing of nutritious liquids as common drinks, to the frequent and irregular use of mucilages, rice-water, thin panada, &c., under the idea that such bland liquid nutriment is best adapted to the irritable and inflamed condition of the intestines.

In connection with this irregular slop diet, solid food is indeed dangerous; not that general nutrition is injurious, for in the low stages of dysentery inanition is a prominent feature, but because the digestive organs, weakened and disordered by improper food, become incapable of their natural function.

In a disease of this grave character, I would be slow to advise a course of diet at variance with general medical authority. But experience in different types of dysentery, in different seasons, gives me an assurance that, with due attention to the regulation of the digestive function, solid animal food may be used, not only without danger, but with salutary effect.

During the epidemic dysentery of 1849—a season of more sickness and mortality in New Haven than ever known before, certainly for the last forty years—from July to November, inclusive, I attended 223 cases of this disease—cases of such severity as to require continued daily attendance—exclusive of consultation cases and nume-

rous mild cases arrested in the first stage of sickness. Of this number, nine cases (about four per cent.) were fatal.

My patients, as in previous and subsequent years, had their three daily meals of light, solid food—bread crust, dry toast, crackers, &c., the first few days, and afterwards a proportion of various kinds of solid meat. They almost uniformly retained an appetite throughout the disease, the fecal evacuations, when procured, afforded evidence of natural digestion, and the patients convalesced kindly, and certainly sooner than those fed wholly with liquid nutriment. Obstinate vomiting, a symptom frequent under a different course of diet, affected none of my patients. I had no case of relapse during convalescence, an occurrence common that season. In short, I had no reason to believe this plan of dieting injurious in a single case. I may add, in justice to this system of diet, that many families, before unknown to me, that season and subsequently engaged my professional services, assigning as a reason their notice of my success in treating dysentery.

But I should in candor add, that my treatment, some other seasons, has been less successful. In 1854, a season of no more than ordinary amount of sickness, but in which diseases generally were unusually fatal, I lost about eight per cent. of my cases of dysentery. For the last eight years, however, my average loss has not exceeded five per cent.

The Diet of Nursing Women.

This is a subject of much popular error. Thirty-two years since, when I commenced practice, it was a common custom to allow a woman no animal food until nine days after confinement. During this period, the diet consisted chiefly of gruel, tea, and coffee, with a liberal allowance, in most cases, of milk-punch and gin-sling. This treatment of course caused thirst, which called for a frequent and free use of these nutritious drinks. The ninth day was regarded as a critical period, when some fever, with constitutional disturbance, was expected—in many cases, however, less time was required to get up no little nervousness, headache, and feverish excitement. As might be expected, the digestive organs became so irritable that solid nutriment, when commenced, often caused serious disorder.

Though the common practice in such cases is now much improved, yet the use of *nutritious drinks* continues to be a mischievous popular error. Such drinks are thought necessary to promote a due

supply of milk. But a diet which disturbs digestion, tends to disorder all the secretions; and the secretion of healthy milk is best sustained by a diet calculated to regulate the digestive organs, and improve the nutritive function. As in diseases generally, it is important to maintain an appetite, which rarely can be done while liquid food is frequently and irregularly used.

Much of the discomfort usually incident to lying-in women may be avoided by regular meals of solid food, with an avoidance of a free use of drinks. In accordance with the patient's habits in health, coffee and tea should be taken with meals—but at no other times. For the first three or four days, the meals should consist of bread and butter, toast, crackers, rice, and other light vegetable food. With every meal, the organs of mastication should be employed. Under this course of diet, the tone of the digestive organs is preserved, so that, after the regular flow of milk is established, a portion of solid animal food may be safely and advantageously allowed, at first with dinner only, and a few days afterwards with breakfast. With such feeding, the comfort of the mother and the quiet of the infant are in striking contrast with the consequences of an irregular slop diet—a contrast almost invariably noticed by women who have tried both plans of dieting.

Throughout the period of lactation, most women indulge too freely in the use of drinks. Though the quantity of milk is thus increased, its quality is impaired by watery dilution.

We have already stated that this error sometimes causes purpura hæmorrhagica in nursing infants. There are many other serious consequences. The infant has inordinate thirst, and is often crying for the breast. Its digestive organs become weakened and disordered, vomiting and diarrhœa often occur, and the body becomes, in some cases pale and emaciated, in others bloated and exsanguious. In the latter cases, mothers are sometimes flattered with the plump appearance of their infants, while, to a practised observer, the white translucent ears, and the general paleness of the skin and mucous membranes, give evidence of faulty nursing. Such infants are particularly liable to convulsions and to croup. Cholera infantum and marasmus are also common consequences of this error of mothers.

The mother who has correct views on this subject, will use liquids moderately; vary her diet from day to day by a choice of different kinds of substantial solid food; never omit a single meal on account of temporary indisposition, or other cause; allow herself time in

eating for perfect mastication, and take between meals no solid or liquid nutriment. This is the course of diet which is best adapted to promote the healthy sustentation, both of mother and infant.

CONCLUDING SUMMARY.

Had the system of diet described in this report been tried only in the diseases of one season, or a limited series of years, its supposed advantages might be attributed to epidemic influence, some unusual condition of the digestive organs, or other temporary cause. But, after its trial in all classes of disease, for more than thirty years, with increasing strictness as its advantages have become more manifest, the writer cannot entertain a doubt in reference to its general applicability in sickness.

Some of its advantages may be briefly recapitulated:—

1. *The sustaining of the appetite.*—This advantage can be appreciated by any person who has once lingered through a tedious course of fever without appetite, crowding down his porridge, broths, and other liquid food, day after day, with loathing and disgust.

2. *The regulation of the digestive function.*—Vomiting, diarrhœa, pains in the abdomen, tympanites, and other symptoms of disturbed digestion, are comparatively uncommon under this regulating plan of diet. The natural action of the digestive organs being promoted, the alvine evacuations have a comparatively healthy, well-digested character, without the alternate deficiency and redundancy of bile, and other indications of disordered action and secretion.

3. *The increased comfort of the sick.*—Much of the discomfort of sickness arises from disorder of the various organs of digestion. So powerfully, indeed, is the whole body influenced by the stomach, that the general quiet of the system depends much upon the condition of this organ. A plan of diet, therefore, which sustains the appetite, secures a regular ingestion of food, and promotes natural digestive action, must contribute to the comfort of the sick.

An intelligent lady, convalescent from typhus, in the autumn of 1852, remarked to me: "I had often heard your plan of dieting in fevers spoken of, sometimes as dangerous experimental practice. I do not feel competent to decide whether it lessens the duration or danger of a fever, but certainly it obviates much of the discomfort of a patient. I formerly went through a course of fever under the

common slop diet of the sick; and even now my stomach almost heaves when I think of the distressing nervousness and awful loathing caused by food and medicine during that sickness."

4. *The maintenance of a regular nutrition of the system.*—In advanced stages of typhus, and other lingering diseases, patients who regularly eat and relish food, and those fed without appetite, and with constant loathing, present a striking contrast. In one class, a florid skin and general plumpness continue, sometimes with little diminution; while in the other, a pale, cold, shrivelled skin shows frightful waste of body. Patients who are well sustained by nutriment, in fevers, not only convalesce more speedily, but with less wear and tear of constitution.

As before observed, the nutrition of the system is not, of course, proportionate to the food ingested. The body will be sustained by a minute quantity of food, properly digested and assimilated, while a large quantity, undigested, may pass daily through the alimentary canal, without preventing fatal inanition.

5. *A diminished liability to relapse in advanced stages of disease, and during convalescence.*—With the continuance of appetite is preserved a tone of the digestive organs, so that a variety of food may safely be ingested. The organs are thus invigorated by regular habitual exercise, and a continued nutrition. Hence they are not liable, through atrophy, weakness, and extreme irritability, to dangerous irritation from any little error of diet; and during convalescence they undergo no sudden change—no morbidly voracious appetite occurs, the indulgence of which so often causes fatal relapse.

6. *A diminished danger of disease.*—If the plan of dieting, recommended in this report, truly possesses the other advantages which we claim, it must have a salutary influence in lessening the danger, and obviating the fatality of disease.

THE

PATHOLOGY, CAUSES, SYMPTOMS,

AND

TREATMENT OF SCROFULA.

By WM. H. BYFORD, M. D.,

EVANSVILLE, INDIANA.

REPORT ON SCROFULA.

SCROFULA is a disease of nutrition, of the chylous and sanguineous elaboration, of the plastic materials of which the body is composed. It is manifested in the different tissues and organs, by a deposit of unassimilated, deficient, or entirely unorganized substance of a peculiar character, in a great many localities at the same time. This deposit is familiarly known to pathologists by the name of tubercle, or tubercular matter. Tubercle, when once deposited, although always the *consequence* of a morbid condition of the system, produces effects upon the constitution itself, and, to a great extent, modifies the operations of the whole organism, inducing symptoms and consequences of a serious character, by the various steps taken for its elimination, and, when unfavorably situated and copious in quantity, overwhelms every recuperative power of the system, and results in inevitable dissolution. So very grave are the effects of tubercle when effused in the tissues of some of the vital organs, that the consequent embarrassment to the functions of the whole organization is known as the most surely fatal of all maladies.

Phthisis pulmonalis, and tabes mesenterica, I include among scrofulous diseases.

Anatomy.—The condition and appearance of organs, in which the deposit takes place, are subjects which, from their importance, have commanded the attention of all inquirers into the nature of scrofula. Some believe them to be the determining circumstances of the presence or absence of the disease, while others look upon them as of minor importance, and regard them rather in the light of attending accidents. The result of investigation in this respect, I think will at most only justify us in believing that the state of the organ does no more than determine the localization of the constitutional disease. That the same condition in a non-scrofulous habit of the

body would be but simple congestion or inflammation. This last proposition is true of all the so-called scrofulous inflammations. Probably there are no organs so likely to be affected by scrofula as the lymphatic glands. And this, I think, may be explained by a consideration of their anatomy and physiology. A lymphatic gland is formed of a complicated, and almost countless number of convolutions of the lymph-ducts (to use the expression of Dr. Carpenter, convoluted knot) intertwined by bloodvessels of a small caliber, for the most part capillary in size, the whole surrounded by a capsule of dense and resisting areolar tissue. One of their physiological functions is to retard for some time, and for some purpose, the passage of the lymph.

It will be recollected, that Dr. Phillips describes the condition of the lymphatic glands just before the deposition of tubercular matter, as one of congestion or low inflammation, being "red, looking like flesh, and enlarged." Now, if irritating lymph, either imperfectly elaborated or morbid, derived from the skin suffering under slight disease so frequent in patients of scrofulous condition of the constitution, passes through the glands, the same thing may happen in a less intense degree, as occurs when ulceration of an extremity causes the glands of the groin or axilla to inflame and enlarge. When congestion takes place, the bloodvessels passing between and around the convoluted lymph-duct, contained within the capsule, are enlarged; the capsule resists the enlargement of its contents, and these, having more *vis-a-tergo* than the lymph-ducts, encroach upon the diameter of the other. The lymph is more than ordinarily retarded during its transit (and being morbidly coagulable, perhaps), by the passing on, or absorption of the more fluid parts, it is inspissated and left as a deposit. If we admit also, and it is quite likely, that extra-vascular deposit occurs in the substance of the gland, it may be explained under the general rule that obstructed capillary vessels allow effusion to take place through their sides as the effect of the same force that caused the congestion. The parts of the cutaneous lymphatics that are the most frequent seat of the deposit, are precisely those that are derived from parts subject to the slight external diseases of dentition, &c., of childhood. It is certainly very rare to find scrofulous children free from some cutaneous eruption about the chest and head, and in no case, where these cutaneous diseases exist, have I found them free from glandular enlargement. How much cause for a like congestion of the mesenteric glands may be found in the

digestive diseases, which I believe are always present in this class of patients, need not be stated; the effect of such are apparent. The bronchial glands may also be affected by irritation of the mucous membrane of the lungs. This irritation would not result in anything more than temporary enlargement from common congestion or inflammation in persons not scrofulous, and after a certain time, take a direction toward suppuration or resolution, and be soon terminated. Here would be the difference between simple and scrofulous inflammation determined entirely by the condition of the constitution, and not the local disease. After deposit in the gland has taken place, it serves as a point of irritation that invites more deposit for a time, which may gradually subside, and the deposit be absorbed, or be intensified to suppurative inflammation, and the deposit, with more or less of the substance of the gland, is softened by the pus, and eliminated from the parts. As before intimated, lymph may be sufficiently irritating from imperfect or diseased elaboration, without being derived from morbid tissue, to produce something of this effect on the glands. The appearance of other organs immediately previous to the deposition of tubercle, is not sufficiently determined to allow definite statements here. But some facts of importance have been ascertained as indicating their probable condition. It is generally believed and acknowledged by many eminent authors, that the deposit is often hurried and rendered more copious by inflammation in the tissues of the organs thus occupied, and some even believe that tubercle is a result of inflammation. The probability is, that local vascular excitement is in a greater or less degree present in all cases, previous to the deposit, and continues throughout the time it is going on. The rules governing other effusions are equally applicable to this. When they occur from the capillary vessels, there is more or less pressure upon these vessels from the action of the arteries forward, or of the veins backward, which produces great stress of fluid upon the particular part, and causes the thinner parts of the blood to percolate their parietes into the surrounding tissues; the state of the blood determining the character and ultimate condition of the effused substance. The vascular turgescence may so completely subside, as to leave no trace behind in *post-mortem* examinations.

A great many irritating causes may give origin to the local congestions. The deposit itself will increase it. The collection of mucus in the air-cells and small bronchi, from low action of the respiratory organs, where they have not been exercised to the

requirements of expectoration, may form points of irritation sufficient to commence the stagnation referred to. Sedentary, and quiet-living individuals, who never draw a deep breath, would be in a condition to favor this state of the air-cells. Or persons who inhale small particles of metallic, mineral, or earthy substances, and do not exercise their lungs enough to clear them of such accumulations, would, from their being points of irritation, be obnoxious to tubercular deposit when the blood was in the right condition. Chemical analysis of tubercle shows it to resemble very closely, if not to be identical in composition with protein, and discovers no constant difference between tubercle from the lungs, liver, mesenteric and lymphatic glands, or any other portion of system. Its formula may be given thus: $C_{46}H_{36}N_6O_{18}$; the formula of the three proteinous compounds being $C_{48}H_{36}N_6O_{15}$. Microscopic examinations establish an identity, instead of difference, between the scrofulous products discovered in the various parts of the body, and with other facts pointing in the same direction, bind together as one in character, the scrofulous, glandular affections of childhood, and the extensive tubercular disease of adult age. The following microscopic description of tubercle I have taken from Simon's *Pathology*. "They are essentially composed of the following constituents, viz: 1st. A transparent, almost homogeneous struma, soluble in acetic acid and the alkalies. 2d. Granular material, often in overwhelming abundance, especially in the yellow tubercle, and consisting partly of fibriniform granules, and partly of molecular oil. 3d. Aborted cytoblasts, dark, condensed, misshapen, angular, and insoluble in acetic acid."

"Other non-essential, but frequent admixtures are, 1st. Calcareous granules; 2d. Shapes evincing the various stages of pus development derived from inflammatory changes in the surrounding non-tuberculous tissues; 3d. Epithelium of the bronchial tubes; 4th. Black, carbonaceous deposit; 5th. Plates of cholesterine and glomeruli of oil. "Viewed by the naked eye," says Dr. Walshe, (*Cyc. of Anat.*, quoted by Simon) "when in that condition that its properties are most clearly remarked, and when at the period of its development that no dissentient opinions are held as to its nature, it presents the following characters: It is an opaque substance of yellowish color, sufficiently firm, yet friable, of little tenacity, and resembling cheese very nearly in point of consistence; inelastic, without particular smell, accumulated in small masses, varying in size from a pin's head to a hen's egg, of homogeneous

aspect all over the divided surface, exhibiting no vessels, insoluble in water, and if mixed therewith quickly subsides to the bottom. And these are the properties of a material which, from its physi ology, is characterized by its tendency to become soft, after it has existed for a variable period in the condition of firmness, and induces various changes in the texture with which it is connected, changes eventually affecting its own elimination. In the same material texture with such tuberculous matter as we have above described, are very frequently found certain small bodies varying from the size of a pin's head to that of a small pea, of grayish tint, and glistening aspect. These bodies in different, and in textures associated with yellow tubercle, are more or less transparent, and though in their own substance of light grayish color, their translucency sometimes gives them in appearance the tint of the circumjacent structure; their section exhibits a smoother, and close surface, hard as cartilage almost in some instances, and invariably remarkable for firmness, and in general outline roundish, yet, in reality, of somewhat angular form, and adhering so closely to the surrounding tissues that they cannot be removed without particles of these; they have a striking tendency to accumulate in groups." This latter was formerly regarded as antecedent condition of the deposit to the yellow, first described, but at present, it is supposed by most intelligent observers that the yellow may be primary, and some believe that the gray never becomes yellow. However this may be, they are identical in their causes and pathological demeanor. It is surprising that there should yet be dispute about the particular tissue in which tubercular matter is primarily effused. Until the researches of Carswell, the opinion was rather general, and perhaps universal, that the areolar tissue was its invariable habitat; since so much light has been thrown upon the subject by this industrious and accomplished author, it is supposed that the surface of the mucous membrane is its most common nidus. I think now, it is the most prevalent notion in the profession that it may be deposited in almost any structure, but more commonly, first, on the surface of the mucous membranes, and secondly, in the areolar tissue. The shape of the deposit is determined, in some measure at least, by the tissue and containing cavity in the air-cells—globular in the minute bronchi, filiform in the intestinal follicle, moulded into the shape of the cavity, and in the areolar tissue it may be in flat layers, punctiform, agglomerated, or scattered, &c. After it has been deposited, it generally occupies its

position for a length of time varying, from the effect of different circumstances, from a few weeks to many years. The circumstances on the part of the system which cause it to be soon eliminated, are unusual sensitiveness to its presence in an organ, either from inflammation or an irritable state of the organ from any other cause whatever, rendering it prone to inflammation and the effusion of pus or serum. On the part of the deposit, are large quantity, a tendency to chemical disintegration by fatty degeneration, becoming soft and deliquescent, and dissolving the included, and some of the surrounding tissues, or inducing inflammation, ulceration, and suppuration in them. Some of the circumstances which render them more persistent in their locality on the part of the system, are the organic hebetude of old age or the healthy protective capacity of the more robust, and entire absence of all other source of undue irritation in the affected organs. On the part of the deposit, smallness of quantity, less tendency to spontaneous fatty degeneration (probably being, in some instances, more nearly allied in character to the living structure), and what is known as the chalky and ossiform hardening. There are, probably, two ways by which the process of elimination commences. The first, and probably most frequent, is where the tubercle undergoes chemical change, softens by the formation of fatty matter within its own substance, and this deliquesces, or becomes semifluid. In this kind of elimination, the softening begins in the centre of the mass. It is analogous to the fatty degeneration produced in muscle by inserting it in water of a moderately warm temperature. The second, by acting as a foreign body, it irritates the containing tissues, and causes inflammation, suppuration, and ulceration, by which the whole mass is dissolved, conducted to the surface, and ejected. In this kind of elimination, the softening begins at the surface of the tubercular mass. In the former mode, we must remember that, although inflammation of the containing tissue is not the first step in the process of elimination, it supervenes after, or during softening, and continues until ulceration and ejection take place.

Nature.—But to find the nature of scrofula, we must go behind its morbid anatomy, into the circumstances which precede and develop it. The effects upon the morbid organs are but the consequence of something else. We are, generally, satisfied when we can trace diseases through the solids to the blood, and in scrofula, also, as establishing its connection with that fluid. And if we can find the manner in which the blood is affected, and the character of

the affection, we may be able, in some measure, to prevent it, and, as a consequence, the results which flow from its contamination. For the most part, I think the disease of the blood arises within itself, and is closely connected with the alterations which are produced in it by the processes of repair and decay of some of the tissues, secretion, and excretion; and consists of a retention of the albumen which should be consumed in repair of tissues, or excreted through some of the outlets, as the nitrogenous materials of the excretions. This is proven by the chemical analysis of such cases as I have had an opportunity to examine. I subjoin the analysis of the blood of three cases of phthisis from Simon's *Chemistry of Man.*

	1	2	3
Water	807.500	825.200	750.000
Solid residue	172.500	174.800	250.000
Fibrin	4.600	6.500	A trace.
Fat	2.850	4.200	8.700
Albumen	98.860	90.850	131.000
Globulin	71.230	61.110	94.500
Hæmatin	8.110	2.690	2.750
Extracted matter and salts	9.850	8.000	15.250

Showing increase of albumen above that of the healthy standard. Upon examining Cozzi's analysis of the blood in intermittent fever, which has been considered antipodal in nature to phthisis, I find the albumen as low as 48.71, 56.61, 47.59, 53.10, respectively, in four cases, showing a great decrease in this constituent. I see it is stated by Dr. John W. Green, in writing from Paris to the *New York Medical Times*, No. 5, vol. vi. page 272, that M. Rostan asks the question, in connection with cases before him, "Is it not remarkable, that the cholera should be followed by thoracic accidents?" "Tuberculization, can it be the sequel of cholera?" He is inclined to think that it often is. Now, the most prominent fact in connection with cholera is, that it leaves the patient with a large proportional increase of albumen. Whether the result of a large number of analyses will lead to the same result in scrofula, I am not prepared to say. It is surprising how little attention has been paid to the exact relative quantity of this substance in different diseases; it is often included with other substances; the quantity of fibrin, globulin, and hæmatin, being objects of most interest. It is a rule observed by all the different constituents of the blood, that when accumulated much above their natural quantity, to tend to effusion. Examples may be found in dropsy from

excess of water, hemorrhage from excess of red corpuscles, and I contend that, when albumen is in excess, tubercle is the result of its effusion in the tissue.

A large accumulation, say of ten to twenty parts to the thousand of albumen, would cause a tendency to elimination in some way, and if it could not find exit through its natural channels (and I believe the muscles to be a part of them), it would be effused as in the cases with other substances or parts of the blood, within the substance of the solid organs. When fibrin is increased in quantity, as in inflammation, its effusion results in particular parts of the system. It is not into all the organs, or any of them indifferently, but in such places only as are subject to an inflammatory stress from arterial force upon distended capillaries. It is just so with albumen, with respect to vascular stress upon the capillaries, only that it is not necessary for it to be so great as for the effusion of fibrin. Fibrin and albumen, one or both, transude the capillary parietes in sufficient quantities and of right quality to nourish the tissues in ordinary nutrition, and repair waste from the functional operations of different organs. But when exosmosis is effected by vascular action, above the natural grade of force, or any altered action, the effusion is not incorporated into the natural *structure*. The albumen, if not absorbed, becomes an unorganizable deposit; but the fibrin, possessing superior capacities, assumes *separate* organization, and becomes an additional living part. If we admit the correctness of the above statements and deductions, it will be interesting to inquire, how does albumen become increased? The most prolific source is its non-consumption and non-excretion. It is intended mostly for the nourishment and repair of the muscular system, and through these extensive and active organs, it finds its natural way into the excretions, and thence out of the system. Urea and uric acid are probably mostly composed of the nitrogenous material resulting from the waste of their substance under exercise.* The minute physiology of exercise has not been given, so far as I am informed, by any author, and it is with diffidence that I attempt it. But, to make my opinions intelligible, I must describe it so far as it relates to the subject of scrofula. All its phenomena have their starting-point from, and their dependence upon the rapid and extensive changes going forward in the capillary tissue of the muscles.

* MM. Becquerel and Rodier state, that albumen is present in a larger than natural quantity, in the blood of patients who have been confined from paraplegia.

such a vast bulk of the system as is contained in these organs, all in a state of functional activity, every part of which, as a necessity to the discharge of that function, is making constant and rapid interchange of molecules with the blood for waste and repair, requires a large quantity of blood to be circulated through them, in the right state, for the support of this change. Blood contains in abundance the material for their nutrition, and as this nutritive material is distributed through every drop of the whole sanguineous fluid, a great amount of blood must be brought in constant capillary streams to the changing parts. The probability is, that the voluntary muscular system constitutes one-half of the bulk and weight of the whole system. The supply of blood is effected, no doubt, in a great measure, by the increased attraction of the muscular tissue for the blood in the capillary vessels, until the change is produced in the blood by the accomplishment of the repair of waste caused by exercise, or the functional action of the muscles, when the same blood is repelled forward into the venous radicles, and thence to the heart. This is according to the elective affinity of tissue for blood containing its nutritive material. As this process is going on to so large an extent, when all the voluntary muscles are in action, more blood is brought forward to the heart than when the muscles are quiet; the heart is stimulated to greater exertion; blood is thrown in large quantities into the lungs (and the rest of the system), in a venous condition; respiration is increased, as well as the rapidity of the pulse; the blood is arterialized, and returns in a state to repair, and take up the waste material of the muscles, and render it excretable. And as in this process of quickened circulation more blood is carried to every part of the system; charged with effete material of the muscular system, it arrives in larger quantities at the skin (hence the glow of exercise), kidneys, and other excretories, in the right state to stimulate all to renewed and augmented function. To make all the phenomena the more impressive, we will follow an example through the different conditions above explained.

A physician sitting in his office, and taking no more exercise than the ennui of inactivity imposes upon him, to change his position, stretch, gap, &c., if he examines his pulse will find it beating about seventy-five times in a minute. This is sufficient to keep up the small amount of waste and repair which is going on from the animal functions then in action, superadded to a languid state of the organic. This rate of leisure in the stream of arterial

blood, will keep up this state of the functions, but falls short of sustaining it when these latter are urged to greater activity. Should our subject arise, the assumption of the erect posture causes the heart and arteries to increase their rate of pulsation from two to seven or eight per minute. If an urgent summons requires him to walk a mile rapidly, when he arrives at his destination his heart is beating tumultuously, and his arterial pulsations have become an hundred in frequency; he is covered with perspiration, a glow of color and heat is perceived all over the surface, his urine is also increased in quantity, and laden, to a more than ordinary degree, with urea, according to the quantity of the whole excretion. In this altered appearance of the individual, it is apparent that some great physiological change has taken place within the system. A few moments' absolute rest, and all these phenomena disappear.

Now let us examine a little more minutely into this succession of circumstances, and, if possible, trace them to their physiological origin, and follow them to their physiological results. In order to do so, we must bear in mind some established physiological as well as anatomical facts. Every organ, in discharging its functions, undergoes tissual change on the surface or within its textures; the muscles are changed in substance throughout their texture; every fibril, in contracting, undergoes some waste, and must be repaired before it can act again. To do this without impediment, and with frequency, fresh and thoroughly arterialized blood must be unceasingly supplied, varying in quantity according to the functional activity. As I have before stated, the muscular system, which is directly or indirectly under the influence of the will, is in man probably a majority in weight of the whole body, and that in the change from repose to active exercise, one-half, at least, of the whole organism has undergone a transit from functional repose, and, consequently, interstitial status to great functional activity and interstitial change; experiencing as rapid disintegration and repair as is compatible with its own integrity. Bearing this in mind, we will have but little difficulty in accounting for the external manifestations. In walking fast, nearly the whole muscular system begins simultaneously to act vigorously in the contraction of every muscle, each fibril (and they are numberless) experiences atomic waste and repair by exchanging some of its own substance with the blood for atoms floating within that fluid; thus making the action of the heart and arteries necessarily rapid to keep up

ne supply and carry away the effete material derived from the hanging tissues. The muscular tissues supply themselves from he capillaries in their substance, by virtue of their affinity, as before stated, for the nutritive material in the blood of the capillaries, and hurrying this fluid forward by an opposite repelling force. This almost universal increase of capillary force, as it is called by physiologists, demands corresponding activity of the heart and arteries. It is very likely, I think, the capillary force may become augmented to an extent that will make it greater than the cardiac and arterial force. Although in a single capillary it is very slight and easily obstructed, yet when multiplied by millions it will compare respectably with the power of the heart and arteries. An interesting fact, in connection with capillary force, is that it is increased by functional activity. When a large number of muscles are in exaggerated action, the multiplied extent, and consequently multiplied power, would pour so large a quantity of blood into the heart, as greatly to increase its frequency of action. So important and obvious is the fact, that increased function augments the capillary force, that it is almost certain that if every organ could be made simultaneously to exercise its functions to its utmost capacity, that the heart would be overwhelmed by the amount of blood that would be forced upon it. The material used by the muscular system for repair in the discharge of its functions, is the albuminous parts of the blood, either directly as such, or indirectly by the albumen being converted into fibrin. The substance from which it parts in the change, for the most part, makes its appearance as urea or uric acid in the urine. These substances, it is believed, are also in part secreted directly from the albumen in the blood. The exercise, then, of the muscular system, according to its activity, will consume a larger or smaller portion of albumen. Long continued repose, therefore, would indirectly increase the quantity of albumen by not consuming it. But there is another way in which the want of exercise would increase the albumen. The activity of the organic functions in changing the blood, that is in excreting, secreting, &c., depends greatly upon the supply of blood in the "right state," hence the activity of the bloodvessels, caused by exercise, encourages and promotes activity and correctness of excretion and secretion. So that supposing the kidneys be capable of excreting the accumulated albumen, the languor of the circulation and diminished supply of blood in the absence of exercise, would prevent them from doing so efficiently. That they do

not is proved by the known fact, that exercise greatly increases, while repose decreases the solid contents of the urine, and especially the quantity of urea. In one of these ways, or both, a want of exercise increases the quantity of albumen in the blood. It may deteriorate the blood further from want of correct secretion from the various organs connected with digestion in its different stages. The gastric secretion may be deficient or altered in character, from a sluggish state of the bloodvessels and a wrong state of the blood. So with the liver, pancreas, intestinal mucous membrane, &c. From a knowledge of the accelerating and depurating effects described as the effect of exercise, and exercise being the voluntary action of the muscles, we may often use it to great advantage as a depurating agent for the blood itself, and to excite the languid and perverted action of almost all the secreting organs. The accumulated albumen in scrofula is associated with a diminished proportion of red corpuscles; and although the uses of these little bodies are not fully determined, the quantity is a pretty fair index of respiratory efficiency. This deficiency, therefore, implies a diminished capacity for oxygenation in the blood, and slowness of decarbonization; in all probability, also, as a consequence of these two facts, a feebleness of developmental or regenerating capacity of the plastic constituent (albuminous) of the blood. Hence, effusions occurring from local congestions would be more likely to have an aplastic character. I know that organizable coagulable lymph is in inflammation sometimes effused in scrofula, but in many cases where this is the case, it is mixed with tuberculous or unorganizable effusions also. And as the organizability of the effused material may be measured by the relative quantity of corpuscles, in proportion as the scrofulous depravation of the blood increases, so organizable inflammatory effusion decreases, and is replaced by the ulcerative and degenerate character of vascular action. The relative disparity in the quantity of albumen and red globules in the blood, when considerable, serves to increase itself. Take into consideration the effect that an undue density of the serum, from an increased amount of albumen, may have upon the corpuscles, and we have an agent capable of first producing and afterwards keeping up the disparity. A denser than natural fluid surrounding the corpuscles, capable of—by the law of endosmosis and exosmosis—producing the "stelliform, serrated, and corrugated" appearance, described by Dr. T. Thompson as being often apparent in cases of phthisis pulmonalis, and eventually causing the complete dissolution of a large portion of

these important little bodies. In plethora, or a disproportionate increase of the corpuscles, we have an easy remedy by bloodletting, the albumen lost in that way being readily replaced by a little rest; but in the case of increase of albumen, it is hard to restore the proportion, as it has to be done in an indirect manner, and under circumstances of spontaneous degeneration, when the process is once fairly set up. This accounts in a rational manner for the obstinacy of scrofulous disease, the extreme difficulty not only of causing resorption of effused tubercular matter, but also to prevent its further occurrence. The emaciation results not so much from want of nutritive material as the vital force necessary to appropriate and organize the material into the tissues. The capacity of organization is lost within the blood by the nutritive material from inadequate oxygenation; they are not in the right state to be attracted to and appropriated by the tissues. This view of the causes of tubercle, and of the condition of the system accompanying it, affords a ready and rational explanation of the fact, that very many of the wild animals, of naturally active habits, confined in zoological gardens and menageries, are affected with tubercle, and die of the effects of tubercular deposits. The inactivity of the muscular system is the greatest contrast of all other circumstances with their former condition, and it would be closing our eyes to the vast importance of the largest and most active part of the organization, not to look for an effect commensurate to the comparative size and functional activity from this muscular inactivity. I apprehend, also, that the celebrated and often repeated experiments of confining rabbits in a dark, damp place, and feeding them on bad food, would be quite as successful in tuberculizing them, if their muscles were confined by inclosing them in a close net bag, without any other change either in habits or food.

The increase of albumen in the blood, a diminution of its plasticity, its local effusion from slight congestion, and great difficulty of absorption—its absorption being prevented by a superabundance already in the blood and by its low grade of vitality—is quite enough to account for its local concentration, and destructive effects upon the tissues.

That the nutritive elements of the blood are altered during primary assimilation, is also probable. Symptoms of indigestion, if they do not precede other signs of scrofula, are very early accompaniments. This alteration probably consists in an imperfect development of the proteinous change of the nutritive material.

Casein, from being the proteinous compound furnished by milk, is probably the primitive and the least organizable, albumen next above, and fibrin third, or more highly organizable than the others. The last two are the forms of proteinous material from which all the living tissues are nourished. May not the change consist in an arrest of the forward development of them, or degeneration backward to the first? The physical properties of what is called the mature tubercle, would, I think, warrant an affirmative answer. Other unusual conditions of the constituents of the blood exist, also—there is an increase of fat. I have dwelt with great stress upon the opinion that the changes mentioned in the blood are caused by want of exercise of the muscular system. But the want of exercise produces another condition of the system. Its chronic evils, although generally manifested in tubercular cachexia, sometimes lead to obesity, or great increase of the fatty material. Indolent persons are apt to become fat or tuberculous; a state of perfect health is entirely incompatible with the want of exercise. There are many individuals who grow fat without eating or drinking largely of carbonaceous substances; and some of the most abstemious become fat on diet apparently least calculated to give origin to a large amount of fat in the system. Pathologists are beginning to regard this condition as a diseased state of assimilation; and, although they cannot give the processes by which it is brought about, they generally believe the albuminous compounds in the blood, or some one of them, afford the material out of which this fat is elaborated. It is, most likely, a chemical degeneration even below that of tuberculization. This opinion receives countenance from the fact that fatty degeneration is one of the steps taken by nature to convert tubercle into a thinner and more easily expectorable substance. This fatty condition of the system may be determined by some peculiar effect upon the chyme and chyle, or in the more proximate processes of nutrition.

Etiology.—The causes of scrofula are such as act upon the system at large, and produce the constitutional disease (usually regarded as the predisposition), diathesis, or scrofulous condition of the constitution, and those that localize it. These last induce inflammation or irritation in the parts which are to receive the deposit. They are abuses which, in an ordinary condition of the system, would lead to common local inflammation or congestion. The most important of the general causes are, the chronic effects

of want of exercise, bad food, bad air, and insufficient clothing. Were it not for the importance attached by authors to hereditary influence, I should think it the least powerful of all causes of this disease. I shall dispose of it, before considering the others.

Hereditary Influence.—Every individual of the whole human race is probably susceptible to the influences that induce scrofula, although certain of them are more so than others; and, as the result of long experience, it is supposed that the most susceptible are from parentage equally so with themselves, either in the persons of their immediate predecessors or a more remote ancestry. It is regarded, in these cases, as an inheritance, and that these persons are hereditarily predisposed to scrofula. It would be waste of time to enter into an argumentative disquisition to prove or disprove the hereditary character of scrofula. The *pro* and *con* upon it have been presented in a far more able manner than I could hope to do. But, as I have a right to my own opinion, I shall proceed to state it as briefly as possible.

There is the direct inheritance of the disease, in which the child shows signs of scrofula at birth, and a tendency to its development at a certain period during the patient's life. Cases are now and then observed in which the tubercular deposit is found upon dissection in the fœtus before the full period of utero-gestation. In such instances, we are compelled to acknowledge that the effect is produced by maternal impression upon the blood of the child. Precisely how this impression is produced, no one can tell; but it is reasonable; and, hence, we conclude that the mother's blood is scrofulous, and contaminates that of the child. There are, however, several curious circumstances which embarrass this question, so much that we must as yet consider ourselves very much in the dark. For instance, how often have we known mothers to give birth to children while laboring under extensive scrofulous deposit—and, of course, have scrofulous blood—robust and healthy, so far as we can judge, and remain so until we lose sight of them? Certainly, not many practitioners of twenty years' experience but have seen lively and apparently healthy children born while the mother was in the last stage of consumption. It is asserted, also, that other diseases of the blood than scrofula in the parent, produce this disease in the child. Slight syphilitic taint is one of them; and even great disparity of age in the parents, conception during menstruation, are supposed to cause the scrofulous constitution in the child. All these last have no

positive relation to scrofula, yet, it is believed, induce the taint, and, according to some, with great certainty. Admitting them as facts, may we not account for them by supposing them to give a general proclivity to disease, and, as the blood of one or both the parents is scrofulous, to cause the deposit to take place more readily than if no such secondary affection were present? The hereditary influence by which children, during some period of their life, manifest scrofula, as it has been manifested by their ancestry, is an extensive and very interesting question, speculatively as well as practically. Speculatively, there is no difficulty in acknowledging it as the result of developmental similitude impressed by the parent upon his offspring, so that at certain periods of the child's life—which, for the most part, correspond with periods of similar consequence in the parent—changes take place of an almost definitively like character as in the prototype. The hereditary predisposition, according to my understanding of it, means nothing more than the organic similarity of the child to the parentage, to be manifested, all things being equal, in similar dispositions and diseases. Practically, too many facts have been collected by the profession, to doubt the correctness of opinions which favor the doctrine. There are but few, however, of the warmest advocates of hereditary descent of scrofulous predisposition, that believe the disease always to originate as a consequence of this cause alone, although many believe it necessary or indispensable to the efficient causative influence of other circumstances. Now, I am not among those who think it scarcely ever, if at all, sufficient, without other favorable influences, of itself, to induce scrofula, but that other causes operate with more certainty and rapidity in persons with such proclivity than without them. It is equally correct, I think, to state that the causes which I shall mention directly are quite sufficient to induce scrofula in most persons who were not born of scrofulous parentage. Want of exercise, I believe to be the most powerful of all generating and determining causes. Exercise is a roborant and depurating means, of incalculable benefit to the system. A great amount of exercise is indispensable to the continuance of perfect health. We have the command of God, written in the holy Scriptures and in the proportions of our organization, that by the sweat of our brow shall we eat bread. What does such a large bulk of muscles—equal to one-half of the whole organization—mean, but that locomotion and all variety of *action* are a majority of our functions? Is there any other set of organs but

the voluntary muscular system, that have an active function, but what are at least half the time engaged in the performance of them? Is there any other organ or set of organs, for the support of which so much material may be found in the blood? Is there any other organ or set of organs, through which so much effete material may be made to find its way to the excretory organs by an active discharge of their functions? Is there any other organ or set of organs, that start almost all the rest of the system, particularly the heart and bloodvessels, the secretory and excretory organs, into active operation as a consequence of the discharge of their own functions, as the muscular system?

It will be seen, by a careful consideration of the above questions, that, to speak figuratively, the voluntary muscular system is a lever always within our reach, by which we can perform a great many physiological wonders, as well as physical achievements. A want of exercise would cause languor of arterial circulation, pulmonary or respiratory action, deficient secretion and excretion, and thus embarrass all the other functions; although, to get a prominent view of the effect of different causes, we often take a look at their extreme action, we must philosophically graduate them to their actual condition, in order to arrive at truth. While a want of exercise serves to deteriorate the blood in a good many different respects, I think it causes a right state of that fluid to deposit scrofulous matter (or tubercle) in particular. The material which goes to nourish the muscular system, is essentially the same in chemical composition as tubercle. The want of exercise, by not consuming the albumen, and on account of the languid condition of the circulation in the excretory organs, preventing the adequate excretion of it, causes an accumulation of that substance in the blood, much above its natural quantity. This accumulation, so far as I can judge, may be demonstrated by chemical analysis; and is the condition, according to the best information I can procure, of the blood in scrofula. And, as before stated, the common rule is in these cases a tendency to effusion, which takes place by the operation of slight causes. But exercise in its more extended, or professional sense, ought to include also the free play or action of every animal function, intellect, locomotion, sensation, and voice. All the animal functions have something of the relation to the organic, as that which has been represented as existing between the voluntary muscular system, and the latter, each having its own depurating influence on the whole blood, and standing in a particular

relation to some of the excretions. Mental exercise, in a hygienic or medical sense, means the proper and moderate alternate action and repose of all the different faculties of the mind, perception, reflection; the sentiments and passions, all having their own, and appropriate effects upon the constitution, which cannot be dispensed with safely. They are known to possess physical influences over the organic functions, beneficial or prejudicial, according to their action. So that, in addition to the advantage of strength acquired by each, they must be exercised for the general weal. Many instances will suggest themselves to every intelligent medical man of the influence in diseases of the nervous system over all the rest. Next in importance to the voluntary muscular system, in respect to want of exercise in leading to scrofula, is the voice. The voice, as the excitor of the respiratory organs, is a kind of independent ventilator, by which mucous secretions from the bronchia, dust, and other impalpable substances, are discharged and ejected; the peculiar trembling, back and forward oscillation of the air under its influence serving this purpose admirably. It also distends the minute bronchial tubes, and dilates the air-cells in the lungs, where any ordinary respiratory effort would have but little effect, thus bringing in closer proximity to the blood, the pure air from without. The invigorating and purifying influence of speaking, singing, and laughing, is incalculable. And the individual who does not cultivate the first two of these accomplishments, adds greatly to his chances for scrofulous diseases, and particularly deposits in the lungs, besides foregoing some of the most exquisite enjoyments of which we are susceptible. Calling into action certain otherwise unemployed faculties of the mind, inducing peculiar conditions of innervation, and considerable muscular exertion, the voice thus used sends a stream of highly purified vital fluid to every part of the organism, and thrills of animation through every fibre—two of the most essential promoters of good health.

Exercise of only a part of the different endowments of the human being, as is often the case in some kinds of employments followed constantly, may in some respects be justly considered as operating, to some extent, as want of exercise. It leads to impediments of many of the organic functions, by the sanguineous impurities it induces, and the failure of equilibrium in innervation. Hence arise many nervous disorders, which act vigorously upon the system at large. For, in all the kinds of exercise I have been considering—although it may be less obviously, but quite as power-

fully—the portion of the nervous system engaged acts upon the whole of that system as a unit, diffusing its good effects throughout its entire ramifications.

Foul air has been enumerated among the causes of scrofula, but, as observed by Phillips, it is so generally associated with bad food and poor clothing, that it is hard to estimate its real effect. There is probably no doubt that, thus associated, it causes a deterioration of the blood, depresses the nervous power, and in this way induces sluggishness of functions, which is a predisposing state of the system, to which eventually disease may succeed. Bad food has much more potent effects alone, than bad air, and is deleterious to the system under almost any circumstances. Its first appreciable operation produces indigestion, and the derangement of function, and impure condition of the blood resulting from imperfect primary assimilation. The second may be an alteration of the composition of the blood, for want of proper composition in itself. By its improper composition, even when otherwise good, the normal quantitative variety of the constituents of the blood may be disturbed, their proportion being so altered as to render it unfit for its great variety of purposes. Poor and insufficient clothing, while it renders the person more susceptible to be affected by atmospheric changes, depresses the nervous energy, indisposes to exercise and exposure to pure air, and gives a particular direction to most morbid causes toward the mucous membranes. The diseases of dentition in infancy are most fruitful primary causes at this tender age. They produce their effect in a similar manner as the above causes affect adults, by inducing indigestion and derangement of all the organs associated with the stomach and bowels, leading to inactivity of the muscles from general debility, and consequent accumulation of albuminous material of the blood in depraved condition, and causing local irritation of the lymphatics and mesenteric glands, from irritation and inflammation of the skin, intestinal, nasal, buccal, and bronchial mucous membrane. Protracted confinement from accident and disease of a character to induce great inactivity of the muscular system in the child, or adult, also favors scrofula. All depressing influences, by decreasing the tone of the nervous system, and through this medium affecting the blood-making and blood purifying processes, have some effect in leading to this disease. The above are the causes which, for the most part, operate upon the whole system; others produce all their effects locally. The inhalation of small particles of hard and indissoluble

substances, which collect in the small bronchia and air-cells, and after being there for some time, and even immediately after being inhaled cause irritation, coughing, and, if not speedily expelled by these efforts, act as foci of sanguineous congestions, is an active influence in localizing the deposit from the blood of scrofulous matter. Blows, or other causes of concussion of isolated portions of the lungs, act in much the same way; inflammation from any cause may, and very often does have a like effect. Anything, in short, that causes an uncommon local collection, or stagnation of blood in the nutritive capillary vessels of the lungs in highly scrofulous subjects, may be expected to act thus deleteriously, from which, in a healthy condition of the system, nothing serious would result; whether any such, or other deposits occur from the capillary system of the pulmonary artery and vein is doubtful, as they seem to be adapted to the exosmosis and endosmosis of gases, instead of the substantial effusions that are derived from other capillaries, and allow none of the blood, or any other than its gaseous constituents, to pass through their parietes without rupture. The causes which localize the disease in the lymphatic glands are the various external slight affections of the skin inducing slow and very moderate inflammation upon those superficially situated, as the common and more active glandular inflammations result from external sores, morbid matter in the lymph being the cause of the inflammation in both instances. The difference in the state of the constitution, causing the difference in the result of that inflammation, similar affections of the internal mucous membranes induce inflammation of the mesenteric, bronchial, cervical, and other internal and deeper-seated lymphatic glands.

Description.—A great proneness exists to consider tuberculous deposit in harmless localities (lymphatic glands) as the disease—as the original, at least essential feature. Much difficulty is encountered in describing scrofula, so as to be known with certainty; and, in the present state of our knowledge, it may be impracticable until the peculiar deposit takes place. But, notwithstanding this difficulty, it should be faithfully attempted, until, if possible, the efforts are successful; and, from the many zealous microscopic, chemical, and promiscuous observers in the field, that desirable object may, before long, be effected. This attempt should be the more imperative, because every intelligent physician knows that the deposition is the effect of a previously existing condition of

the constitution, and that this previous or formative state is by far the best time, in all cases, to effect a cure, and, in some instances, the only time when we dare indulge in a hope of recovery.

The description of scrofula almost naturally arranges itself into three divisions: First, scrofulous condition of the constitution; second, the period of deposit, and its consequences; third, the softening of the deposit, and its elimination, and the consequences of these processes. Of course, some varying circumstances occur under all these divisions, as the consequence of age, temperament, &c. I am aware that this arrangement is not altogether unobjectionable, as all of these different circumstances occur simultaneously, and are so frequently merged into each other, that they may not be distinguished; but this, I think, is not generally the case. The scrofulous condition of the constitution includes the processes going forward in the whole organism, which lead to the formation, and cause a deposit of the peculiar matter called tubercle, under favorable circumstances in the parts. I have already stated reasons which I deem satisfactory, for considering the curdy, friable deposit in the lymphatic glands, lungs, and elsewhere, to be the same, agreeing in every essential particular. The scrofulous condition of the constitution, as a stage of the disease, might be regarded as formative, but it generally continues, also, through the period of deposit, and it may, though I think not generally, through that of softening and elimination. History of the former condition of the patient is among the first circumstances to which we should turn our attention; for, according to the hereditary doctrine, scrofulous parents produce scrofulous children, and, when once the disease has manifested itself, we may expect it to be ever present; so that the scrofulous child will be a scrofulous adult, and, without the very best hygienic and therapeutic management, will die of the disease in some shape. In order to study intelligently the scrofulous condition of the constitution, we must bear in mind that there are two stages of life when it is most likely to be developed. These are, childhood—between one and thirteen years—and adolescence—between eighteen and thirty in the male, and perhaps two years younger in the female. In early infancy and maturity, it does not so often originate. In childhood, the scrofulous constitution is shown by the following symptoms: extreme tenderness of the skin, being easily irritated to eruption of scrofulous character; herpes, psoriasis, pityriasis, porrigo, &c. It easily cracks by the action of the air, and becomes excoriated by the secretions, giving

origin to ulcers about the groin, vulva, vaginitis, &c. The ears often discharge an ichorous substance, either from eruptions within the meatus, or diseases of the ceruminous glands. The eyes become injected from slight causes; the nares are prone to inflammation from trifling causes, the secretion from which is thin and acrid, and excoriates and tumefies the upper lip. The skin is also loose and flabby, and the circulation in it languid, causing the patient to have a pale and unnaturally white appearance. The muscles feel soft and flaccid, and, although the limbs may be plump and full, they are not solid and firm. The process of dentition often affords us valuable information as to the presence of this condition of the constitution. It produces undue irritation and ill health. The stomach is easily disordered, and vomiting very common, the fluids thrown up consisting of undigested food and altered secretions. As the irritation becomes greater, the bowels participate in the derangement, ejecting serum and disordered secretions. Although we may correct, for a time, this disorder of the chylopoietic viscera, it will certainly and easily return under the operation of the slightest causes, until, if it does not lead to rapid and fatal marasmus, that state so aptly denominated strumous dyspepsia by Dr. Todd, makes its appearance. The abdomen is swollen; diarrhœa and constipation often alternate; the appetite is capricious, the patient desiring the most unwholesome and even disgusting substances. The tongue is never healthy in appearance, but presents no constant condition, varying in appearance from time to time. There are ulceration, and sponginess of the gums; the teeth decay early, even sometimes before they are entirely through the alveola. The extremities are generally cold, and a sense of chilliness, upon the least exposure, confines the patient in close proximity to the fire. The arterial system is easily thrown into febrile commotion, for several hours or a day or two, but generally subsides without any dangerous effect upon any one organ.

The urine is often white and milky in appearance, when voided in a surface large enough to spread out into a thin layer, and cool suddenly. It is also scanty and red, at times; at others, copious and limpid. Respiration is so easily embarrassed, that when there is energy enough to prompt or allow the patient to exercise, the want of breath restrains him. The nervous system, in some cases, is very excitable—convulsions resulting from trivial causes—while, in others, it is less impressible than natural, and the patient is dull,

and inattentive to the most exciting circumstances. The mind, if I may judge from my own experience, most frequently partakes of the general languor and debility of the physical system—precocity being an exception, and resulting rather from injudicious crowding than spontaneous activity.

For a further description of strumous dyspepsia, I would refer to Dr. Todd's graphic description, in the *Cyc. of Prac. Med.*, Art. "Indigestion." I think it neither necessary nor right, however, to contend for any one form of indigestion and its concomitants, in children, as the exclusive representative of the scrofulous condition of the constitution, but believe, in these young subjects, it assumes a multiplicity of shapes and grades, and yet points in the same direction. I regard the assemblage of morbid symptoms so often connected with the stomach and bowels in feeble children, during teething, as but the evidence of an existent or originating scrofulous constitution; and when the system withstands the more directly exhausting effects, so as to bear up under it for months, a large majority emerge from them with tuberculous deposit somewhere. Sometimes, in the subcutaneous or mesenteric glands, the submucous tissue of the bowels, membranes of the brain, the brain itself, or, if any irritation about the lungs, as hooping-cough, bronchitis, there may be a deposit in these organs. How far this indigestion, and the consequent impoverishment and alteration of the blood acts as cause of the deposit, has been considered under its more appropriate head. It is easy to perceive that the state of the organism, above referred to, is what might be expected to result in a feeble child, during dentition, under the unfavorable circumstances with which they are surrounded when thus afflicted, and hence, that however they may be causative, they are no certain evidence of a previous scrofulous taint. However this may be, the deposit is too frequently a sequence or accompaniment not to be significant of a connection at least. I think the attention of the profession is not sufficiently directed to the fact that almost no case of protracted and distressing assemblage of symptoms connected with primary dentition, fails to accompany if not lead to scrofulous glandular enlargement, or what passes as such with the most of intelligent physicians.

The children that escape all evidence of scrofula (if this is ever the case), also escape the usually experienced troubles of dentition. While I consider all signs based upon temperament, complexion, or other healthy appearances of the individual, as evidence of scro-

fulous system, fallacious, I would watch the child laboring under protracted derangement of the chylopoietic viscera, at the period indicated in the general division (childhood) of this subject, with the utmost solicitude, and believe that he had escaped fortunately, if he should pass through childhood to ripe manhood, without more unequivocal signs of organic disease from tuberculous deposit. The swelling of the lymphatic glands from the peculiar scrofulous or tubercular deposit is the certain evidence of the presence of scrofula in children or in adults, but in the latter it is much less frequent than in the former. The immediate effects upon the parts of the deposit of tubercle in the lymphatic, is, for the time, and perhaps permanently, to destroy the function of the gland in which the deposit takes place, and is replaced by simple areolar tissue. The sanguineous vessels of the gland, when deposit is about to take place, become turgid and congested, and circulate more blood than usual; and hence the gland is enlarged and hard. This state may last a longer or shorter time, when it is succeeded by the stagnation and effusion of lymph (when the gland is still more hardened). The immediate effects of the deposit in the parts surrounding and the constitution, depend more on their locality than anything else, as they irritate more by their bulk, at first, than their other offending qualities. In the external lymphatic glands, and also in the mesenteric, their immediate effects are trifling, as the space occupied is of but little consequence to the organs. It is their effects upon the constitution, their secondary effects in children, that are of most consequence; for, although I believe the rule is that in this class of subjects they are absorbed when situated in the lymphatic glands (and I think very likely they may also disappear from more hazardous localities), yet they often act as foreign bodies, produce inflammation, suppuration, and ulceration, and are hence discharged. In the external lymphatics, the suffering is great, both locally and generally, depressing the constitution to such an extent that it may never rally, and leaving large unseemly scars, that are never effaced. Should the deposit in the mesentery produce inflammation, suppuration, and ulceration, the long and perilous stages of tabes mesenterica ensue, while hydrocephalus results from their irritating presence in the cerebral meninges. I might mention many other diseases, all of a tedious, and most of a very dangerous character, incident to children, as the consequence of scrofulous deposit. Very frequently, children affected by the scrofulous condition of the constitution, deposits, and some of their

effects, rally, and become comparatively vigorous and healthy; but they are, of all other individuals, the most liable to the ravages of scrofula in their more advanced years, and in its more grave forms. In after life, we find, also, in individuals who may not have suffered in this way in childhood, from vitiating influences, going on in the different process of assimilation, becoming victims of scrofulous deposit. And I think the present state of our knowledge on the subject justifies us in the conclusion that, with rare exceptions, the abdominal affections are common accompaniments of this general disease in adults, and that our early attention to them is of the utmost importance to successful treatment. That this condition is so constantly present, I think is strong evidence that its vitiating influence on the blood is one of the important secondary if not primary causes. It is true that it is often slight, and not a very obvious symptom, but in adults always present in some form or other. The scrofulous condition of the constitution in youth and adult age, is so well marked by symptoms, as to enable us in as many instances to distinguish it with certainty as almost any other of the diathetic diseases. As I have before intimated, I do not think, by any of the healthy peculiarities of an individual, we can diagnosticate scrofula. All that can be affirmed, from appearance, is that they have more or less strength of constitution, or temperament peculiarities. All the signs from which a diagnosis is dededucible, are morbid, and, in most instances, pertain to some aberration from or perversion of healthy nutrition. In youth and adult age, climate and local influences have a share in modifying the appearance of the patient. In the South (especially in miasmatic districts) and West, many, but certainly not all, scrofulous patients, have a pale, sallow, icteroid appearance, but others have the delicate commingling of the lily and rose, more generally observed in the Northern countries. More or less steady emaciation, great susceptibility of surface to the effect of cold, and softness or flabbiness of the superficial parts, may be observed for months or even years before any obvious signs of deposit occur. Flabbiness and irritability of the muscles denote a loss of tone in their substance. As one of the healthy peculiarities mentioned by Dr. Theophilus Thompson, for the sake of those who attach importance to them, I will mention the absence of a liberal covering of hair on the chest, as a sign of predisposition to consumption. The blood of persons of scrofulous constitution, he says, when exa-

mined, if not deficient in fibrin, will be found not so plastic, the clot being softer and less than natural.

He describes also a peculiar transparent appearance of the edge of the gums where they are reflected over the teeth, apparently resulting from fineness of structure. In other instances, especially if erethism of the mucous membrane of the mouth exists, a border of lake or vermilion tint, such as might be supposed to originate from congealed blood in the capillaries, attracting oxygen in great quantities. The mucous membrane generally seems delicate and very susceptible to impressions from cold or any irritating substances. The nares, larynx, trachea, and bronchia, are more frequently and easily affected from these causes than usual. In females, leucorrhœa and irregular menstrual discharges indicate great delicacy of structure in the genital organs. The mucous membrane of the mouth and fauces often become thickened and red, while the tonsils are enlarged with chronic inflammation. But, in this tissue, the most important deviations from healthy functions are in the stomach and bowels, and the secreting organs emptying into them, inducing various forms of indigestion. The forms of indigestion, resulting from these derangements, are very diverse. I cannot believe, from my examination, of the most acceptable authors and my own observation, that the indigestion which accompanies this condition of the constitution is made up of any one train of symptoms, but present quite a diversity of appearance. While, therefore, I agree with Dr. Todd in believing that indigestion is a far more important evidence of the presence of a scrofulous system than any which is founded upon temperament, physiognomy, mental precocity, or any healthy sign whatever, I think it no less true, that his strumous dyspepsia will not cover in description the whole of the cases in which indigestion is present to an obvious degree.

In considering the connection between indigestion and tubercle, we should remember that all of the symptoms going to make up any particular disease in different cases take a great range of comparative gravity, one set of symptoms assuming a greater degree of prominence than in others, without the parts from whence they emanate showing any greater *post-mortem* ravages than when such symptoms were less salient objects of observation. On the other hand, organs suffer silently, almost damages, to a great extent, both in function and structure; and none more so than the digestive organs. Less derangement of the digestive function would be necessary to produce great effects upon the blood in some individuals

than others, so that when authors say that "persons of consumpted constitution often have a restricted appetite and take little at a time, although a certain degree of hunger soon returns; they are not, in general, good feeders; they are not among those who 'unbutton after dinner;'" I think that, notwithstanding their unbelief in strumous dyspepsia, they acknowledge the feebleness, if not disease, of digestion.

Another evidence of a scrofulous constitution is, the occurrence of many local diseases, particularly scrofulous inflammations, as they are called, and other affections so commonly and very properly associated with scrofula. After deposit has taken place in youth or adult age, the symptoms of its presence, although not so obvious as in infancy and early childhood, because not so frequently external in position, yet, by its effects in embarrassing the functions of the organs in which it is lodged, we may often detect its presence before the process of softening has commenced. Of course, it would be tedious and superfluous, in speaking of the softening and elimination of scrofulous matter, to do more than to refer to some of the prominent examples of diseases of separate titles formed by an assemblage of symptoms produced by these processes.

Embarrassment of respiration and imperfect discharge of the pulmonary functions in changing the blood when it is deposited in the lungs, are the first symptoms which are succeeded by consumption, so soon as the irritation of these internally foreign bodies produce inflammation, suppuration, and their attendant phenomena.

But, as the object of this paper is to present a general view of scrofula, I will not follow into detail the consequences of softening of tubercle in other positions in the body.

TREATMENT.—And first, the hygienic means are an abundance of good and pure air, appropriate clothing, good and sufficient exercise, good diet and plenty of it, and every possible freedom from disease. And these all enter largely also into the curative treatment. There is no difficulty practically in assigning the share of good effected by each of them; and the *modus operandi* of the first three is so evident that I do not consider it necessary to enter into a detailed account of them. Fashion, and, indeed, many of the almost necessary attendants upon civilization, have so far vitiated the judgment of the people at large, and probably also some of the profession, that in these days of luxury it is difficult to ascertain, if not to prescribe the circumstances under which all these valuable

hygienic means may be enjoyed. Certainly, they are not to be found in the warm close room, and superabundant clothing on the back, body, and hips, and the next to naked extremities, necks and bosoms, highly seasoned food, and spirituous stimulants of fashionable society. Nor are we any nearer to them in the damp, dark rooms, and other attendants of poverty. The place where they may be most frequently encountered is in the agricultural districts and hunting frontiers, where Nature affords them all to the inhabitants by making the necessary exertion to procure them only in their needed quantities and in their most natural form. So soon as the elegant farm-mansion takes the place of the log-cabin; the loom is replaced by the piano-forte; the elegant carriage supersedes the hard trotting horse; the linsey-woolsey is exchanged for the broadcloth, calico, and silks; our country schoolhouses are replaced by the costly college edifice; the woollen stockings and strong coarse shoes, by the kid slippers, and the manly sports of running, wrestling, and the chase, for the more fashionable of the theatre and crowded and overheated ball-room, they all vanish; and the physician, who is the guardian of public health, must, so far as possible, substitute something more congenial to the tastes and condition of a people in their onward progress toward physical imbecility. Good living, in all its meaning, in its broadest sense, I know, is not to be depreciated; I only insist, that the family which lives in a new, high, rolling country, occupies a log-cabin with free open chinks, a blazing log fire for ventilation, clothed with drapery woven by a wife who nurses her own children; attends to her own dairy; does the cooking, washing, mending, and making for her whole family; is provided for by a father who brings down the wild deer, turkey, and other game before breakfast; feeds his own stock; grows, and takes to market his own produce, and enters with a will into all athletic sports of a country neighborhood, does not have scrofula, and, by studying their habits and circumstances, it will afford us better suggestions for prescription for their more indolent and less healthy neighbors of large and luxurious cities and wealthy country districts. Good food, air, and comfortable clothing, all afford no security without plenty of judiciously varied exercise. The mere contemplation of the physical organization of man is enough to convince the medical philosopher that plenty of exercise is one of his necessities. He is made for it, and cannot live without, and he cannot be healthy long without an abundance of it. His muscular system forms a very large part of his whole

organization equal, perhaps, in weight to all the rest of the system, and, without they are exercised at least one-third of the time, they will not remain strong and healthy, or consume sufficiently the substance in the blood intended for their support, to keep that fluid in a state compatible with the health of the whole body. In a sufficient proportion of exercise of so vast a set of organs, in addition to its immense immediate depurating effects upon the blood, by increasing the circulation, it indirectly acts upon every part of the system, by sending the blood refreshened by the lungs through all the organs in the right state to quicken and render more effective all their functional action, more particularly the excretories or outlets for the effete matter in the system. On the other hand, without all the other co-requisites—good food, pure air, and appropriate clothing—exercise would be too exhausting, and could not be sustained; it would impoverish the blood by using, faster than it was introduced, the nutritive materials of the system. As I have said elsewhere, exercise of the voluntary muscular system alone is not all of exercise in its professional signification, but it is a great lever always within our reach, by which we can move all the rest of the functions. Next in importance to exercise of the general muscular system is that of exercise of the respiratory organs by means of the voice in speaking, singing, laughing, and otherwise. This should never be neglected by patients who apprehend tuberculous deposit in the lungs. It should be a part of their business to attend to this matter every day of their life. Singing, speaking (or laughing) every day, for a sufficient length of time, will do a great deal toward preventing accumulation of mucus, dust, or any fine foreign substance in the pulmonary cells and minute bronchi, which, when allowed to remain, form *foci* of sanguineous congestion, and thus favor the deposit of tubercular matter in the lungs. The effect of a protracted fit of laughter has no doubt commended itself to most observers by the free mucous expectoration it produces as an agreeable and efficient means of clearing the bronchi of their unnecessary contents. Another mode of exercising the lungs is to freely expand them by a full inspiration and retain the air by closing the mouth and nose, and press the walls of the chest until every cell, as far as practicable, is filled fully with air several times a day. There is no question, I think, from my own experience, that these special modes of pulmonary exercise are efficient prophylactic measures. In a general consideration of the subject of exercise, as preventive of disease, we should bear in mind the

fact that ostensibly (to the patient), such exercise, so far as possible, should have other objects than a mere relation to its medicinal effects. It should be of a character to draw off the mind of the patient from his disease, and engage it, interestedly, by sport or business, and thus keep up a buoyancy or carelessness of spirit, so necessary to a free play of feeling or sentiment.

Dr. Carmichael, as quoted by Mr. Phillips on scrofula, says, in relation to the Bethesda School and St. Thomas Parochial School: "I came to the conclusion that, in depriving children of active" (careless, unrestrained) "exercise in the open air, which is so necessary to their health and development, is almost"—I would say quite—"as injurious as improper nutriment. Let a healthy child have sufficient exercise, and his powers of digestion are so sharp that he will, perhaps, assimilate the most inappropriate diet; otherwise, the majority of our poor would become scrofulous; deprive him of his liberty, and his nutriment will remain undigested. The children of both schools were fed, clothed, and taken the best possible care of, with this exception, that from want of playgrounds, they were prevented from the enjoyment of active exercise; and although *free from disease at the time of admission, near one-third of them were found exhibiting signs of scrofula.*" Now, from this description by Dr. Carmichael of these two well-regulated institutions, I can arrive at no other conclusion than that, in these cases, at least, scrofula was caused by want of exercise. According to his statement, they had, with this exception, every possible care, and they took scrofula. Mr. Phillips, by adopting this language of Dr. Carmichael, as a confirmation of his own opinion (not so definitely expressed, but implied), gives his testimony in favor of want of exercise as an efficient cause of scrofula. I might cite much as weighty authority, but for want of time and space. If exercise, good food, pure air, and comfortable clothing are necessary as preventive measures, they are no less essential to the scrofulous invalid. In the period of deposit, they are among the most powerful means of cure. The first can and should be used freely, and in an appropriate manner, throughout all the stages of the disease, except, perhaps, in the inflammatory and febrile complications, and then in most instances. The others always and at all times. And the more we can induce tolerance of them by management, the more successful will be our treatment. Every possible freedom from local or general disease, is a preventive means, I should have mentioned, of very great importance; the

latter as conducing to a vitiated and debilitated condition of the system, which favors the attack of disease generally, the former as the localizing influences under which its most dangerous as well as more mild forms are developed. Colds, or diseases of the pulmonary mucous membrane, and parenchyma, and the irritative and inflammatory affections of the mucous membrane of the stomach and intestines, should be avoided as much as possible, and cured more carefully and promptly than any other local diseases. For the purpose of avoiding external scrofula, diseases of the skin should have a large share of our attention. Cleanliness and bathing, to increase the tone and depurative activity of the skin, are highly beneficial preventive means. Above all others, I think in children the diseases incident to the period of teething are the most fraught with danger, both by their general effects in causing inactivity and confinement, and vitiating the blood, and causing local, digestive, and cutaneous irritations, inflammations, and their consequences. By digestive diseases, the chyle may be rendered deficient in elaboration, or otherwise improper in quality, while great local effects are produced by them on the mesenteric glands. By the skin diseases of dentition, general effects may be wrought upon the system, because of the inefficient discharge of its depurative office, as well as their local effects on the lymphatic glands, through which its effete or diseased material is carried by the lymph duct. Any sort of general disease that confines the patient for a long time, greatly impairs the nutritive functions, and often either produces or develops the tuberculous habit. I cannot resist the conclusion, because it seems to me fairly deducible from facts, that many of the torturing and debilitating chronic cases of so called scrofulous disease, are connected with scrofula, because they induce the diathesis by the confinement, debilitating, and vitiating process by which they are accompanied. We are often unable to trace any hereditary taint in a family, in which a patient arises from a protracted confinement caused by severe injury, typhoid or other fever, with incipient consumption. Now, I know it is usual to account for this by the great idea of remote transmission. The disease, we say, has existed in the family a long time back, perhaps several generations, and these very favorable circumstances have developed it in a constitution full of the old family taint. So, in my opinion, all mankind has the scrofulous taint, and under favorable circumstances we all may become scrofulous, and without this the disease is never developed.

An embarrassing circumstance in the treatment, is the incapacity of the digestive organs properly to assimilate the diversity and character of food required to keep the blood in healthy condition, while improved assimilation has become necessary on account of the unfit or degenerate condition of the blood itself. Unless this indigestion can be removed, or some article of diet afforded which, by its adaptation to the state of things, requires but little assimilation, the case must become progressively worse. Some writers have dwelt upon the first, and others upon the second considerations to the exclusion of the other. Much good can be done, I think, by acting upon both of them, and although in practice they ought not to be separated, it will be better, in order to get a more distinct view of the means appropriate to each, to consider them apart, and first for the relief of indigestion. According to my own observation, the symptoms and appearances of indigestion preceding, or accompanying scrofulous development in any form, are so various, as to tax sorely the knowledge and ingenuity of the physician, and that the treatment must be left to the guidance of general principles. Hence, I shall only mention some very general remarks on the subject, and I cannot better commence than by introducing a few pertinent remarks by Dr. Bennet on climate and exercise, as applicable here. He says: "I allude to the fallacy of the idea that the climate itself has a sanative tendency, and that the breathing this or that air is like taking so much medicine, and ought to do good *per se*. But it should be considered, the best climate is only useful as a means of taking exercise, and (thus) promoting the nutritive functions without exposure to those drawbacks which are more or less common at home. It is by regarding exercise as necessary to recurring active digestion, (by promoting the consumption of a part of the materials of the blood, and hence cause a call for more, and the capacity to afford it by and through the digestive organs) that its importance as a therapeutic agent becomes obvious in phthisis; and any locality which will enable the sensitive invalid to go out on foot, or horseback, without the chance of meeting cold winds, or showers of rain, must possess an advantage over one where these occurrences are common." These observations I desire to apply to the dyspeptic condition of the scrofulous more particularly, but also to the whole course of the various diseases arising out of the scrofulous condition of the constitution. And I believe that, although exercise is not the only means, yet it is an indispensable one in the cure of

scrofulous indigestion. That it cannot be cured without exercise, and the more that can be borne without *great* fatigue—for some fatigue is necessary to its full effect—the more certainly and readily will the recovery take place; for it not only produces the right condition of the blood for the repair of the tissues undergoing waste, and the production of healthy secretion of gastric juice, as well as the secretions from the rest of the organs concerned in digestion, and full and free excretion, but it promotes healthy general capillary energy, whereby equilibrium in the circulation, weak local sanguineous congestions are removed, absorbable foreign substances taken up, and diseased tissues healed. Every possible contrivance should, therefore, be devised for the exercise of scrofulous invalids, adapted to their bodily strength, at the same time affording them protection from atmospheric changes, not by confining them to rooms, but by clothing, and habit. The latter is too little regarded where exercise is necessary. The weak and infirm, by habit, may be enabled to meet cold winds, and even showers, without any detriment, and if judiciously managed, with great benefit to themselves, especially when combined with exercise active enough to keep the warmth of the body up to a degree necessary to resist the chilling effects of the outward cold, and continued only so long as this may be borne without any disagreeable sensations. A means of some value to assist in forming a habit of exposure, is the cold sponge bath every morning upon rising from the bed, or, when a person can bear it, the shower bath, followed (whichever may be used) by dry friction until a glow is awakened upon the surface. This means increases the tone of the skin, which it enables to resist the varying temperature that may surround it, so that its sympathetic effects upon the internal membrane will be corroborant instead of debilitating, or otherwise morbid. Other means will, no doubt, suggest themselves which may aid in producing a habit of exposure. Whatever they may be, we must endeavor to effect this desirable end, if possible, as out-door exercise is greatly more beneficial for obvious reasons, than exercise in confined rooms. Among medicines, I may mention mercury, particularly in children, as capable of doing more to relieve the digestive diseases attendant upon the scrofulous condition of the constitution than any other drug—I speak here of children under three years of age. With free exposure to the pure air, such exercise as the patient can bear, good, appropriate food, and warm clothing, we will have but little need of any other medicine than

small doses of bichloride of mercury given in a decoction of taraxacum, or minute doses of calomel given as often as occasion may require, to keep up an active condition of the liver, and produce its soothing effect upon the mucous membrane of the stomach and bowels. The cold bath every morning, followed by frictions, will also do good in these cases. I am so thoroughly satisfied with this treatment, that I place my main reliance upon it. Taraxacum, I think, of all the vegetable alteratives, in fact of all other than mercury, the most efficacious in removing scrofulous indigestion in children, and I believe I may also add adults. Alkalies, absorbents, demulcents, and anodynes, will often be indicated as palliatives, but their operation is merely palliative and temporary. Tonics, either vegetable or mineral, in children, for this indigestion, I have not derived any benefit from, with the exception, perhaps, of quinia. Emetics have a very good effect when the disease is in adults, by emulging the liver and pancreas, and improving the gastric secretion. But mercury and taraxacum are often very effectual here, as well as in children.

In using taraxacum, as much should be given as the stomach will bear, instead of measuring by grains. With adults, the vegetable and mineral tonics are often of great service. Iod. of iron, tartrate, and pure precip. carb. of the same metal, are the most appropriate of the mineral tonics, and will be most likely to agree with the stomach. My experience with these tonics leads me to believe, that they will agree with the stomach more certainly when suspended in mucilage; this is particularly the case with the carbonate. The various condiments may often be made to do good service; common salt is of great benefit in promoting digestion and assimilation; and it is for this purpose alone, I think, that it should be used. It may have its effect by acting directly on the stomach, as a stimulant, or by getting into the blood, improving its quality, and hence the secretions concerned in digestion. Capsicum is much used as a condiment for weak digestion, and probably in a great many instances to which it is adapted, does good. It is to the indigestion of scrofula that alcoholic and malt liquors, as medicines, are adapted. And if taken in the proper manner, I have no hesitancy in saying that they do good. They should be taken with the food during the meal. By so taking them, they are thoroughly mixed with the aliment, and gain access to the mucous membrane of the stomach gradually, and gently and constantly stimulate that organ, until the whole digestive process is finished

without very powerfully affecting the nervous system, as they do when taken on an empty stomach. If taken after eating, they will not be so mixed with the alimentary bolus, and not so completely fulfil this purpose. They may often be used in the manner above described, in quantities sufficient to do good by nervous patients without producing their usual disagreeable effects upon them. The difficulty of entirely relieving the indigestion of scrofula, and the consideration that, while attempts of the kind are being made, time is allowed for the morbid changes which are characteristic of the progress of this class of diseases, and the patient removed from a retrievable to a hopeless condition, have compelled the practitioner to entirely substitute, in many cases, or use at the same time, what Dr. Bennet calls the analeptic management. It consists of the introduction of easily digestible substances, and which require very little assimilation, it is supposed, to be adapted to form proper compounds for use. They are substances which contain fatty matter in some shape, such as fat meat of different kinds, butter, cream, or the different oils. Oils derived from a great variety of sources have been tried, some of which, from a consideration of tolerance, more particularly are preferred. It is hardly necessary, however, to mention any other than that derived from the codfish livers, as it is much more extensively approved of than any or all others; it is given in such quantities, three or four times in twenty-four hours, as the stomach can bear, increasing, if necessary, until from three to four ounces can be taken daily. To derive permanent benefit, it must be taken for a considerable length of time. I am of the opinion, from my own experience, that it should be omitted for seven or eight days every month, or six weeks. It is usual, and I believe beneficial, to take with the oil some bitter infusion or other tonic before mentioned. Ale, while it affords a good vehicle, promotes digestion, and may be used with the oil. How the oils operate to do good, I think has not been satisfactorily explained; but that they are highly useful there is no reasonable doubt; according to Dr. Bennet, they do good "by improving the chyle" by bringing about the proper proportion between the fatty and albuminous compounds, there being a superabundance of the latter, and a comparative deficiency of the former in tubercular disease. We are sure of nothing, perhaps, in this relation, but that it does good, and experience, not theory, has furnished the fact. Now, I may conjecture, that oil consumes a part of the superabundant albumen in the blood, or changes it, so that it is not so easily deposited as

tubercle, by aiding histogenesis, and causing it to be more easily converted into excretory, or nutritive compounds; but that it does so, can be proven only by a series of observations on the changes it produces in the excretions during the entire course of its administration. It is to be hoped that those whose position and capacities render them capable, will take the subject into consideration, and afford us facts upon this important part of the subject, as also a more particular set of experiments upon the composition of the blood in these cases, as chemistry must be the source of all definite information as to the *modus operandi* of remedies upon certain states of the blood and secretions, some steps in the right direction have been taken, but they are few and "far between." Although oil in in its more simple state, as observed by Dr. Bennet, may be more easily digested than any other animal food, and thus more readily assimilated, there can be but little doubt that the same end may be gained by it in some of its compound conditions, such as sweet cream, butter, fat meats, &c.[1]

It is not improbable, also, that fat may be converted into some other proximate element of nutrition, and not retain, during its beneficial effects, its original chemical form. Indeed, it would seem that other hydro-carbon compounds really have the same good effects as the oils in improving the health of tuberculous patients, and that in a much shorter time, according to Dr. Cartwright, of New Orleans, the warm and able advocate of what he calls the sugar-house cure. The probability is, that the saccharine matter in the shape of sugar, syrup, and saturated vapor, taken and respired, may operate in the same way, and may cause the

[1] I here give a synopsis of the treatment of Dr. D. Morgan, of this place (Evansville, Ind.), with which he has very kindly favored me, that is based upon the use of diet containing oleaginous materials in their more agreeable forms. He says: "I pay particular attention to the digestive organs, correcting the secretions and keeping the bowels regular, and give such tonics and stimulants as may be indicated to increase the appetite and facilitate digestion. This purpose will be forwarded by the patient taking as much exercise as possible, short of debilitating fatigue, in the open air. The diet should be of the most nutritious character, and easy of digestion, such as tender loin beefsteak, roasted or broiled, venison, &c., with good light yeast bread, plenty of sweet butter, and rich, sweet cream. My own experience is, that more good can be obtained from drinking plentifully of good sweet cream, and a free use of new fresh butter, than from cod-liver oil, or any other article of the kind. Many cases which have come under my own observation, and have been treated successfully with cream and plenty of butter, could be related. But my object is merely to draw the attention of the profession to cream and butter as substitutes for the more disagreeable oils, and secure for them a more extended trial."

same changes in the blood as the oil. It is believed by some physiologists, that sugar is, under some circumstances, convertible into fat and the reverse. If this is so, there is no incongruity in the operation of the two remedies, so highly recommended by their respective advocates; and as this is the case, they may be used conjointly, substituted for, or alternated with each other. Dr. Cartwright sends his patients to a sugar-house during the boiling season, and directs them to be as much as possible in the sugar-house, drink freely of the hot syrup, and breathe the warm vapor from it. I would add to the directions, to take a hand at the work about the factory. Could not some means be devised which would enable patients to avail themselves of the sugar cure that are unable to take a journey to the sugar-house, or in any other season of the year than the "boiling season." It may be said of sugar that it, in most instances, is easier of digestion, and certainly more palatable than cod oil. The temperature of the syrup has, probably, some influence in promoting the digestion of the saccharine matter contained in it; it may also possess stomachic qualities not in the pure sugar, and hence better suited to the form of indigestion accompanying scrofula, than the latter. It is believed by Dr. Bennet, and other distinguished writers, that the analeptic treatment is the only one that has any good effect. They think that tubercles will soften, be discharged, and a cure effected in most instances, if the system can be sustained above a fatal state of prostration. They believe that this desirable state of things can often be effected by this nutritive procedure, and the alterative influence it has upon the blood prevent any farther deposition. This is equivalent to stating that it is capable of subverting the diathesis, and, if properly combined with exercise to such an extent as the patient can bear, and other hygienic measures, no doubt the statement will often be borne out by experience. The foregoing general plans of treatment are the most essential to sustain the patient under the processes of disease inseparably connected with tubercular deposit, and also to change, so far as possible, the scrofulous condition of the constitution, and thus prevent further deposition. They should, therefore, be continued throughout, and not abandoned so long as needed, for a more alluring, because more palliating treatment of any kind. The patient should be exhorted to mental energy—when apathy has taken possession of his mind and body—in urging himself forward to comply with every necessary measure for his good, instead of indulging in everything the most agreeable. A

great many remedies have been prescribed for scrofulous diseases, and particularly consumption, from one almost exclusive consideration of some one prominent symptom. Regarding it, if not the whole of, at least the main item of disease, one of these is the permanent frequency of the pulse so *generally* present. Digitalis had gained, at one time, a great reputation in the treatment of phthisis, for the reason that it caused great depression in the pulse. Antimony was used, and still is, for a like purpose. Excessive expectoration and night-sweats have led to the use of astringents, and some have asserted that acet. plumbi and opium are sufficient, when perseveringly used, to cure consumption.

From a consideration of the circumstance of deposit in scrofulous disease, various solvent alteratives have, from time to time, enjoyed an extensive reputation. The most reliable are mercury, iodine, mur. baryta, naphtha. Of the two former, it has been confidently asserted and implicitly believed, that they would cause an absorption of tubercle, and thus cure consumption and other scrofulous affections in which deposit has occurred, by resolution. The experience of different observers, however, has led them to a different opinion as to the efficacy of any medicine in causing absorption of tubercle. Some believe that they produce no effect of this sort.

Whatever may be the decision of this question, there is but little doubt that tubercle in the external lymphatic glands is dispersed by absorption sometimes; and, if this is the case, we may reasonably infer that internal tubercle may be removed in the same manner. And I have long entertained the opinion that the condensed cicatrices in the lungs, attributed to the collapsing and closing of vomica, which have been discovered, *post mortem*, in patients who had slight signs of phthisis, were, in most cases, but the traces of obliterated pulmonary tissue, supplied by an organizable deposit that had replaced the absorbed tubercle. It is just such an appearance as we might expect to result in cases like this where a change in the deposit was produced very gradually in favor of a contractile tissue. It has always appeared to me, to say the least of it, a wonderful conservative act in nature to cause collapse and adhesion of the walls of a vomica filled with air pressing with equal force in an outward direction upon every point of its internal surface with nothing but the inelastic spongy texture of the lungs to antagonize this resistance. Friction and gentle pressure on the lymphatic tumors have a beneficial effect in causing absorption; and liniment

or other rubefacient may be used at the same time. Something may, also, be done to assist the absorption of tubercle in the lungs by rightly managing. A respirator that allows a larger amount of air to be inhaled than to pass out, will, by pressing the air backward into the minute bronchial tubes and air-cells, produce mutual pressure upon each other. If any of these are filled with solid matter, so as not to dilate with air, this elastic substance, distending the tubes and cells surrounding them, presses upon their solid contents, and causes it to be absorbed. Should the matter be less solid or semifluid, it may be dislodged, either from the air squeezing it out, so that it may be dislodged and coughed up, or the air, penetrating the cells containing it, may insinuate itself beneath and among its particles and bring it up far enough to come under the influence of the efficient force exerted by coughing. In the same manner, mucus may be prevented from becoming so thickened as to form points of irritation. Now, how far the forcible distension and pressure exerted in this manner may effect the removal of solidified tubercle, is difficult to judge; but I think it will be apparent that it is acting in the right direction, and is highly deserving of attention in cases where all means combined that have a favorable tendency, nearly always fall short of producing the desired effect. In cases of tuberculous deposit in the abdomen, if we could always diagnosticate with certainty, pressure of a general and uniform character, by bandage properly adjusted or roller, would aid us very materially in the cure by absorption. I desire to be understood as recommending these mechanical means only in such instances as are not attended with that degree of active inflammation which would render them painful, and consequently hazardous. But I will assert it, as the result of my experience, that very few cases of phthisis occur in which they are not at some time applicable or beneficial, and that there must be a very considerable amount of inflammation before they cause any distressing effects. In using the respirator of which I speak, I have observed it to increase the capacity of the lungs, and consequently relieve the dyspnœa, render the expectoration much easier, and enable the patient to take twice the amount of exercise without fatigue that he could before using it. I think it does this by distending many undistended cells, and clearing out of the tubes and cells their tenacious secretions, and thus rendering them better adapted to their aërating functions. For the treatment of the inflammations which accompany any of the scrofulous diseases, important modifi-

cations of the rules for treating ordinary inflammation are required. Every waste of the corpuscular element of the blood should be avoided. Hence, depletion by any of the forms of bloodletting is inadmissible. The most energetic articles of the materia medica for the subduction of this inflammation are the following, and stand, in degree of efficacy, very much according to the order in which they are mentioned, viz: mercury, antimony, nitrate of potash, iod. potas., digitalis. The manner of using them is too well understood to require anything further upon the subject. As an external and very efficient means, counter-irritation gives place to no other in point of importance. In the debility produced by the advance of scrofulous diseases and their complications, preference, I think, should be given to ferruginous tonics, in connection with the analeptic treatment. A great deal depends, for their good effects, upon their being given in such quantity and manner as to produce no local irritation in the stomach and bowels. The pure carbonate, suspended in thick mucilage, is the best preparation that I have ever used. It may be given in ten or twelve-grain doses, three times a day, after eating.

REPORT OF THE COMMITTEE

ON THE

MEANS OF PRESERVING MILK,

AND ON THE

INFLUENCE OF PREGNANCY AND MENSTRUATION ON THE COMPOSITION AND NUTRITIVE QUALITIES OF THAT FLUID.

PREPARED FOR THE

AMERICAN MEDICAL ASSOCIATION,

ANNUAL SESSION OF MAY, 1855.

By N. S. DAVIS, M. D., &c.

REPORT OF THE COMMITTEE

ON THE

MEANS OF PRESERVING MILK, ETC.

THE general subject assigned to your Committee, requires consideration under three distinct heads, viz: First. The means capable of preserving milk free from injurious changes in its composition for an indefinite length of time. Second. The changes which the milk of the female undergoes during the period of menstruation. And third, the changes which occur in the same fluid, in those cases where pregnancy supervenes while lactation is still going on.

If we keep in mind the whole period of human life, from the tender period of infancy to old age, we shall readily perceive that milk is not only one of the most important, but also one of the most essential articles of diet in the possession of man. It is the only article provided by nature for the first period of life, and for which the genius of man has never succeeded in devising a substitute. Embracing in its composition all the elements necessary for the nutrition of the various structures of the body, and in a form so bland and easily absorbed, as to be adapted to the most delicate condition of the digestive apparatus, it is often no less valuable to the invalid and the convalescent than to the infant. In this one fluid we have, in the form of organic matter, *casein*, *oils*, and *sugar;* and as inorganic matter, phosphates of lime, magnesia, and iron, chlorides of sodium, potassium, and soda, and sulphur. All these ingredients are either dissolved or suspended in water, in nearly the following proportion, viz:—

Water	87.7
Organic matter	10.8
Inorganic matter	1.5
	100.0

The only ingredient not in a state of complete solution, is the oil or butter, which exists in the form of minute globules, lighter than the water, and consequently disposed to rise to the surface whenever the milk is allowed to remain at rest. The casein, which is one of the most abundant ingredients, closely resembles albumen in its chemical composition, and like it, liable to undergo decomposition or change by exposure to heat and air in a moist state. But of all the constituents of milk, the sugar is the quickest to undergo changes by time and temperature. Chemically identical with grape sugar, it is very easily converted into lactic acid by a process of fermentation. At an ordinary summer temperature, from six to twelve hours are sufficient to effect this change, or at least to begin it. In the natural condition of fresh milk, the soda is in combination with the casein, and is the means of rendering the latter soluble in the water. No sooner, however, is lactic acid generated from the decomposition of the sugar, than it unites with the soda, leaving the casein free, and consequently insoluble, and in the form of white, coagulated masses. These changes constitute the process, familiarly known as the *souring* of milk. By this very brief glance at the composition of milk, we see in the number and nature of its ingredients, and the feeble affinity by which some of them are held together, the reason why it so speedily undergoes important changes when exposed to the influence of time and temperature. In rural districts, where animals from which fresh milk may be obtained are abundant, the necessity of preserving the milk for the purpose of rendering it less liable to change, is not felt. But on ships at sea, during long journeys over uninhabited regions of country, and in large cities, the difficulty of obtaining pure and fresh milk is very great; so much so, indeed, as to be not merely a source of discomfort, but of greatly increased sickness and mortality, especially during the first two years of life.

The very high ratio of mortality among children in all our large cities, is a fact familiar to all. And though many causes may combine to produce this result, yet long continued and careful observation has satisfied your committee that, among them there are none more prolific of evil than the defective supply of pure milk. The dairies which are kept within the environs of large cities, and on which the citizens chiefly depend, are subject, generally, to so much confinement and unwholesome food, that both the cows and their milk become diseased and impure, even when no adulterations are resorted to by the dealers.

When railroads were first constructed, extending from the cities into rich agricultural districts, it was anticipated that the rapidity of transportation would insure a constant and abundant supply of the article directly from the rich pastures of the country. But a little experience was sufficient to demonstrate the falsity of these anticipations. For however short the time required for transportation, the additional time used in transferring the milk from the farm-house to the cars, from the latter to the general depot, and from thence to individual customers scattered over a large city, accompanied at each step by more or less agitation, is such that, through all the warm season, even with the greatest possible care, the milk is so diluted by the ice used to keep it cool, and so near the full change called *souring*, that it is totally unfit for the nourishment of young children, and adults with sensitive organs of digestion. We speak on this subject from much personal experience and observation. Hence there could scarcely be a more important improvement, or one which would contribute more to the health and happiness of man, than the discovery of some economical and easy method of rendering milk incapable of undergoing change by time and temperature, while at the same time its nutritive qualities and easy digestibility remained unaltered.

During the last half-century, various attempts have been made to accomplish this result, but, until quite recently, with very little success. If they have, in some instances, succeeded in preserving the milk a long time fit for use, it has been either by depriving it of some of its valuable ingredients, or by adding other substances to such an extent as to materially alter its qualities. Thus the plan of M. Appert consisted in boiling the milk in an open vessel until it was reduced one-half in bulk, frequently skimming it, and finally adding the yelk of one egg to each quart of the concentrated milk. It is then to be kept in bottles. An article of *preserved milk*, sometimes found in the market in the form of paste, is thought by a committee of the New York Academy of Medicine to have been prepared by a process somewhat similar to the method of M. Appert, it containing a considerable quantity of albumen. It is easy to perceive that the boiling and skimming process of M. Appert, and the subsequent addition of albumen, or the yelk of eggs, materially alters the quality of the milk, and renders it objectionable.

The most successful method yet devised for the preservation of the nutritive qualities and ingredients of milk in a form at once

permanent and portable, is that of Mr. Samuel T. Blatchford, of Dutchess County, New York. By his method, the water of the milk is evaporated, and all its other constituents obtained in a dry and solid state mixed with a certain proportion of white sugar. When prepared for the market, it is in the form of square or oblong tablets, covered with tin-foil, each weighing one pound. In this form, it is very firm and dry, and has been carried on ships through almost every parallel of latitude and longitude, and kept more than twelve months without change; it being, when re-dissolved in water, possessed of all the constituents and qualities of fresh milk, with the simple addition of sugar. Its capability of being kept without unfavorable change through any reasonable period of time, and under exposure to a temperature equal to the warmest seasons and climates, provided it be kept dry, has been fully tested. Your committee have been unable to detect any change in the qualities of specimens, carelessly left in a box in the office, during all the past summer.

The same preparation of milk is also found in the market put up in cans, instead of solid tablets. In the cans, it is in the form of a dry, granular powder, and is more readily soluble in water than the tablets. The latter, for use, require to be grated fine, or pulverized, and may then be readily dissolved either in cold or tepid water; a pound of the solid tablet being sufficient to convert five pints of water into a good quality of fresh milk. During the summer of 1854, a committee of the New York Academy of Medicine, consisting of Drs. John H. Griscom, John R. Van Kleek, Benjamin Drake, W. N. Blakeman, John Shanks, Joseph M. Smith, Samuel A. Purdy, A. L. White, James Stewart, and James M. Minor, visited the establishment of Mr. Blatchford, in Dutchess County.

In their subsequent report to the Academy, the committee use the following language, viz:—

"It (the process) has been fully subjected to our critical examination; we have traced the milk of the rich pasturage of Dutchess County from the udder to its final conversion into the solid tablet; and we find it, in all its stages and appliances, to be based upon a thorough knowledge of the chemistry and dynamic tendencies of the natural fluid.

"It is not within our province, nor would it be proper here, to detail the steps of this operation; and it will suffice for this to state that the article called '*solidified milk*,' obtained from that locality,

and presented to us for examination, is nothing but the solid constituents of pure milk, combined with a little less than an equal part, by weight, of white sugar; *that it contains no other foreign substance;* that the various solids of the original fluid are preserved intact, even the butter globules being unbroken; that it is readily and perfectly soluble in water, and when it is so dissolved in proper proportion, it is, in fact, milk as it was secreted by the cow, with the sole exception of the sugar which accompanies it; that the only medicinal or culinary operations in which ordinary milk is required, and this article cannot be used, are those in which sugar is inadmissible: while, on the other hand, whenever sugar is required in connection with milk, they are here found together." In another part of the same report, it is said that "the only objection, besides that of the presence of sugar, which can be made to it, is an empyreumatic flavor somewhat similar to that of boiled milk, which it receives in the process of manufacture. This varies in degree, but is much less distinct when the solution is made with cold than with hot water, and in the preparation of custards, puddings, arrowroot, wine-whey, ice-creams, &c., in all of which your committee have practically tested it, it disappeared." In regard to the change of constituents, the committee further observe: "There is no loss of any nutritive material, a fact of which we can always be assured, for the article cannot be produced except from *fresh* milk, as any change in the character of the original fluid, either by spontaneous decomposition, or otherwise, must spoil the result. So any dilution of the fluid by water must only lengthen the process of manufacture, and thereby endanger the issue." These opinions, expressed by so able a committee, after a personal examination of the process and a careful investigation of the whole subject, are sufficient, doubtless, to satisfy the members of this Association that the "*solidified milk*" is all that the manufacturer claims it to be; and that the great desideratum, in regard to the preservation and portableness of that important article of nourishment, has been fully attained by Mr. Blatchford.

But having, previously to the reception of the report from which I have been quoting, subjected the *solidified milk* to a rigid investigation, I will briefly add the results of my own observations and experiments.

When perfectly dissolved in water in the proportion of three ounces to the pint, and examined under the microscope, no difference

could be detected between it and fresh milk, except the presence of granules of sugar in the former. Repeated chemical analyses showed clearly the presence of all the solid constituents of pure milk in their natural proportion, with the addition of sugar and a small excess of soda. It is true, the New York committee assert "that it contains *no other foreign* substance" than sugar; but unless my examinations have been altogether deceptive, there is a larger amount of *soda* than belongs naturally in the milk. Its quantity, however, is not sufficient to constitute the least objection, or to be noticed in any of the purposes to which the milk may be applied. On the contrary, this alkali being a natural constituent both of the milk and the blood, can hardly act as a foreign ingredient in the limited quantity which I suppose to exist in the substance under consideration. Having obtained none but the most satisfactory results from the microscopic and chemical examinations, I next directed my attention to its use as an article of food both for the sick and the well. I caused three children, under two years of age, to be fed almost exclusively on the solidified milk dissolved in water for two weeks in succession. The results were in every respect as favorable as when the same children were fed on the best quality of cow's milk. I also embraced some opportunities to use the article for the nourishment of young infants, who were deprived of milk from the breast of the mother, and who were found incapable of being nourished on such milk as was furnished by the milkmen of the city. The following is one of the cases of this kind:—

Mrs. S. was confined in her first labor on the 16th of September, 1854. She was delivered of a healthy male child, without any untoward symptoms; but four days after, was attacked with symptoms of puerperal peritonitis, from which she recovered in about ten days, but without any flow of milk sufficient to nourish the child.

During the sickness of the mother, and for ten days subsequent thereto, efforts were made to nourish the child on the milk furnished by the milkmen of the city; but it was often rejected by the stomach in a *sour state*, and the child emaciated rapidly; its bowels became disordered, the mouth covered with *thrush*, and two or three abscesses made their appearance in the cellular tissue of the neck and shoulders. Seeing the child in this unpleasant condition, I furnished the family a tablet of the solidified milk, with the request that it should be dissolved in water, as required for use, in

the proportion of three ounces to a pint of water, and given to the child *ad libitum;* at the same time withholding all other nourishment, and prescribing no remedies, except a powder of alum and white sugar to heal the mouth. So soon as this change was made in the diet of the child, it began rapidly to improve. It ceased to vomit, the bowels became more regular, and in a few days it began perceptibly to increase in flesh.

It continued to be fed almost exclusively on the solidified milk for several weeks, during which it remained well, regained a good degree of flesh, and grew finely. The parents soon after left the city, and the child passed beyond the reach of my observation. To detail other cases would extend my report to an unnecessary length. It is sufficient to observe, that all my experiments, calculated to test the nutritive qualities and digestibility of the article, have led to highly satisfactory results.

From the observations thus far made, I have been able to discover only three objections to the substance under consideration. The first is, that it contains an extra quantity of sugar. As an article of nourishment, and for most culinary purposes, this objection would have no weight; but to its use with tea and coffee, it would be disagreeable to many. The second objection is, the empyreumatic flavor spoken of by the committee of the New York Academy of Medicine, and which is certainly quite perceptible when used alone, or with tea and coffee. But this flavor is disliked by a comparatively small number of persons only, and repeated use would doubtless soon remove the *dislike*, even with them. The third objection has reference to the price, which, if I am correctly informed, is twenty-five cents per pound, at retail; being equivalent to about *five* cents a *pint* for pure milk. On the other hand, the solidified milk of Mr. Blatchford's manufacture, possesses some advantages of importance. Its capability of perfect preservation enables us to procure it by the box, as we would sugar, thereby saving all the trouble of being waited upon by a milkman once or twice a day; and, what is of still greater importance, it may be dissolved and ready for use, in just such quantities as needed, in a very few minutes, thereby enabling those who use it to have at all times a *fresh* article. Again, it may not only be diluted, like ordinary milk, to any desirable degree, but it may also be dissolved in such proportion as to render the solution much more rich in nutritive constituents than ordinary milk; thereby furnishing more nourishment in a small quantity of fluid, a quality of im-

portance in some conditions of the digestive organs. From the investigations I have been able thus far to make, I have been led to regard the following conclusions as essentially correct, viz :—

1*st*. That in the "solidified milk" manufactured by Mr. Samuel T. Blatchford, of New York, there are preserved all the solid and nutritive constituents of fresh and pure milk, in such a state as to be capable of remaining unchanged for years, if kept free from moisture.

2*d*. That the solid constituents of the milk so preserved, retain their natural combinations and qualities so perfectly, that when dissolved in water in proper proportion, the solution possesses all the chemical, microscopical, physical, and nutritive qualities of fresh and pure milk from the cow, modified only by the presence of an excess of white sugar, and a trifling proportion of soda.

3*d*. That the article may be used not only safely, but advantageously, for all the purposes to which milk is applied, except those in which sugar is positively inapplicable.

Its portableness, its solubility, and consequent capacity to furnish at all times a solution perfectly fresh, and of any required degree of richness, render it especially applicable to the nourishment of young children and invalids. And hence, your committee do not hesitate to recommend it as a reliable substitute for milk procured by the methods in ordinary use, not only on ships at sea, and during long journeys overland, but also as an article for general use in all our large cities.

A tablet of the "solidified milk" manufactured by Mr. Blatchford about ten months since, is herewith presented to the Association for the inspection of its members.

In regard to the remaining topics referred to your committee for investigation, viz: the influence of menstruation and pregnancy on the composition and qualities of milk, I am not able to make a satisfactory report. Although I have gathered some facts of interest, yet it is easy to perceive that the opportunities for careful and thorough investigation of these topics would not be numerous, in the practice of any one physician during the short period of one year. Should the Association deem these topics of sufficient importance to continue the committee, I shall be happy to pursue the investigation until more satisfactory results are obtained.

All of which is respectfully submitted.

REPORT

OF THE

COMMITTEE ON DYSENTERY.

REPORT OF THE COMMITTEE ON DYSENTERY.

On the first of April, 1855, the Chairman of the Committee on Dysentery informed the writer, that circumstances would render it almost impossible for him to complete his report, and requested us to take the communications received, and condense them for the use of the Association.

We are under the necessity of reporting the usual amount of difficulty in gathering statistics from the profession. Although circulars and private letters were sown "broadcast," our returns were few, and with one exception, confined to the "Peninsular State." The delay caused by waiting for original material for a report on this ancient malady, has prevented deliberate examination of the numerous theories and varieties of treatment of dysentery. Accounts of the etiology and pathology, from different localities and different seasons, signify to us, that Δυς, and Εντερον, in liberal signification, are narrow terms enough for nomenclature. General atmospheric constitution; local malaria; an individual indiscretion have each a claim to all grades of causality. Antiphlogistic, tonic, alterative, narcotic, topical, general, laxative, astringent, sedative and stimulant treatment have each been a "*sine qua non*" and a "*noli me tangere*," according to the circumstances of peculiar epidemics, in which "mucous and bloody stools, with tormina and tenesmus," were predominant symptoms; and still, we believe the educated and industrious have seldom long misapprehended the indications, during the last quarter of a century.

Sporadic dysentery is not as variable in its nature, but bears the local impress of the section and season in its "sthenic" or "asthenic type."

Doct. A. C. Campbell, in an epistle to Dr. H. Taylor, Chairman of this Committee, writes from Lima, N. Y.: "Dysentery has not been common in this locality. Very few idiopathic cases have appeared, and those not severe.

"Sporadic dysentery has occurred at all seasons of the year, generally complicated with fever of bilious character, and is quite common over all this country, when hot days and cool nights prevail. None can predict from the 'prodromes,' whether the attack will result in bilious fever, or dysentery, until the discharges appear. If the large intestines lose their integrity, and blood and mucous discharges occur, the fever succumbs to the local affection. Impure water or food, and special atmospheric constitution, favor the enteric disorder, but in their absence, the usual fevers of malarious districts become developed. In either event, an emetico-cathartic of hydr. chl. m., pulv. ipecac., āā grs. x, followed by 'pulv. ipecac. et opii,' if irritability ensue. If the bowels are inclined to constipation, they should be freely evacuated daily, by the help of ol. ricini cum tr. opii, or pulv. rhei and soda. Excessive drought is a strong predisposing cause of dysentery, acting often through the agency of wells; the water of which, if they are sunk in clay, becomes saturated with argillaceous matter. Such facts existed in this vicinity in 1853, and dysentery became endemic. In Wyoming County, a severe epidemic dysentery prevailed at the same time. Along the streams, and in low districts, dysentery prevailed as an endemic disease; this has been distinctly marked along the Genesee River, for years. In typhoid dysentery, which occasionally appears, the influence of the adynamic fever upon the brain and spinal marrow, places the organs of secretion and assimilation in a condition which renders the mucous membrane easily overcome by the proximate causes of fluxes.

"Remedial agency must embrace the control of secretions and suitable impression upon the nervous system. All varieties of treatment have been tried here in course of time, but none can claim specific virtue. Astringents are of doubtful efficacy, but may cure slight attacks early, or be beneficial auxiliaries in the advanced stage of severe dysentery. No connection with cholera had been detected, no change in the general character of diseases had come to the knowledge of our informant."

John S. Smith, M. D., of Armada, Macomb County, Mich., writes: "Dysentery has been rare in this vicinity; August and September afford the majority of the cases; and these are essentially endemic; generally about one-sixth of the attacks have proved fatal.

"In 1848, at 'Burk's corners,' twenty-five cases of dysentery came under the writer's care, in a district of half a mile diameter; four terminated fatally, only one of which (a scrofulous infant) was

entirely under his care. This patient seemed to be doing well, till the third day, when evidences of intussusception appeared, after which it survived but a few hours. The second fatal case was a male, æt. 45 years; was at first under the care of a reverend 'Quack,' but ultimately died under the reporter's care.

"*Autopsia Cadaverica.*—Rectum and descending colon broken down, portions of the transverse and ascending colon inflamed, and the mucous coat of the small intestines easily removed by the handle of a scalpel.

"Third fatal case. Male, t. 16 years; had suffered an attack of dysentery of ten days', duration, and convalesced sufficiently to resume labor as a shoemaker, which he continued about two weeks; saying that he was 'quite well,' when a relapse occurred, for which, during five days, he was catharticized with pills, senna, salts, &c., by non-professional advice. He then came under our care, but died eighteen days after. *Aut. Cad.*—Extensive ulceration of rectum and descending colon: perforation having resulted in some places from ulceration of all the tunics.

"Fourth fatal case. An infant, æt. nine months, treated by the quack divine afore named several days. What that treatment was, we do not know; the patient died under our care: no autopsy.

"In August and September, 1851, dysentery reappeared in the same locality. Twelve patients, all children or infants, came under the reporter's care: two died, aged nine and fifteen months; each had taken Dr. Conger's remedy two or three days, when nausea and vomiting supervened: I was then called, and treated them till they died, which was not long after. A few sporadic cases came under my care in the fall of 1854, and all recovered.

"In treatment, anodynes were liberally used, with mucilages both by mouth and by enemata. Fomentations were beneficial, and, in the latter stages, enemata of nitrate of silver. I am not aware of any complication, except such disturbances as usually grow out of similar local affections. The face of the country is slightly undulating, with but little forest, although formerly heavily timbered. The usual sources of malaria not abundant. Water is highly charged with carbonate of lime; wells stoned or bricked generally."

Dr. Benj. C. Sutherland, of Ray, Macomb Co., Mich., has seen but few cases of dysentery in that vicinity. In August and Sept., 1854, endemic or sporadic dysentery prevailed to some extent; *i. e.*, in some neighborhoods a small number of cases would appear,

seeming to have a common cause, and, occasionally, an isolated case.

The mortality was about ten per cent. The principal remedies were opiates, mercurials, and counter-irritants. Two cases were fatal, viz: one aggravated by dentition, and one succeeded fever and ague.

The extent of country included six or eight miles square, and is not considered malarious. The face of the country is level, with abundant forest and good water. The season was hot and dry. No change in diseases had been observed by Dr. S., except that fevers exhibited a higher inflammatory type, and required free use of counter-irritants.

Dr. J. N. Cole, of Washington, Macomb Co., Mich., reports: "Dysentery appeared around us, about the first of September, having been preceded by mild diarrhœa, especially among children. Decided epidemic character was not exhibited until several days later, after the fall of two or three quite heavy rains, which rendered the atmosphere humid, and impregnated it with malaria. The location most affected was four or five miles in area, consisting of timbered land, of sandy, mucky soil, with a small stream meandering through or upon its border. Several cases appeared in another and widely different locality, to wit, upon high, bluffy land, of light, sandy soil, poorly watered, and where less malarious influence would be suspected. The cases in this district were full as severe as the other. It is proper, however, to state that two or three of the patients had, a few weeks previously, come from newly-settled parts of the country, where they had been residents for some time. From these cases dysentery seemed to radiate as if by infection or contagion. The manner of attack was various. Some had slight mucous alvine discharges for one or more days; loss of appetite; transient pain in the bowels; and but little acceleration of pulse. Others, from the onset, had violent abdominal pain, nausea, and vomiting, severe chills, followed by febrile reactions.

"The dejections were at first bilious, and afterward of blood and mucus, and occasionally small portions of feculent matter, attended with tenesmus and griping. Still another class suffered the usual prodromes of intermittent or remittent fever, with severe pain in the head and back; quick pulse; hot and dry skin; furred tongue; nausea and vomiting. Exposure to cold, or fatigue, often excited the attack. Pains in the abdomen commenced in a few hours—generally, at first, in the left iliac region—with tenderness

along the track of the colon. Frequent exhausting discharges soon appeared. These cases mostly assumed a tertian periodicity. Taking *all* of the cases together, I think a majority assumed a typhoid grade during the second week, if the disease had not been previously subdued.

"Typhoid symptoms manifested themselves in those cases that were more decidedly *epidemic*, and in that particular locality where several cases of typhoid fever occurred during the progress of dysentery, and after its abatement. Dr. Wood says that the tongue, in this disease, is moist, and covered with a whitish fur. (See *Prac. of Med.*) But this was not the case with the patients that I saw. In them, the tongue was dry from almost the commencement, and became covered with a dark-brown fur, in a short time, which, after the lapse of a few days, would cleave off from the sides and tip, leaving those parts red and glossy, with an elevation of the papillæ. Still later, dark sordes would collect upon the teeth and lips; breath become fetid; a dark purple hue appear below the eyes; the pulse become small and frequent; the bowels tympanitic; and the discharges small, frequent, and offensive.

"The treatment, which I carried out, with variations according to the peculiarities of the case, was commenced with a portion of castor oil, with from ten to twenty drops of spts. of turpentine, combined with laudanum or solution of morphia. If there appeared to be any objection to this prescription, I sometimes gave rhubarb, in substance or infusion; or, a solution of sulphate of magnesia, with potass. bitart. and an anodyne. The laxative having operated, I gave powders of opium, ipecac. and soda, for a day or two, *i. e.*, till the excitement began to lessen, and then added acetate of lead to the formula. In the mean time, ordered fomentations of decoction of *smart-weed*, or hops and vinegar, to the abdomen, and baths of mustard or horseradish to the feet. Anodynes and diaphoretics should be continued, with sufficient intermission to procure cathartic effect every twenty-four or thirty hours. In advanced or typhoid cases, with red and glossy tongue, laudanum and turpentine may also be given several times a day. When the energies of the system rapidly succumbed, I gave brandy sling, beef tea, rice-water, &c. &c. Injections of starch water, laudanum, and acetate of lead, or infusion of kino, were sometimes administered, and, when retained, seemed to add much to the comfort of the patient.

"If the case lingered, with small pulse, furred tongue, dry skin, nausea and vomiting, I found much benefit arise from blisters to

the epigastric region; giving, at the same time, in addition to the above-named remedies, small portions of acidulated infusion of cinchona, or of ulmus. In my own practice, the mortality was about ten per cent."

Dr. Henry Taylor, *Chairman*, presents the following, from Mt. Clemens, Macomb Co.: "In the year A. D. 1846 or '47, dysentery prevailed a few miles from this place, proving fatal in a fearful majority of instances, although treated by medical men of good character. I am told that large doses of calomel were frequently used and mostly relied upon. I am unable to learn the full character of the complaint, not having seen any of the cases myself, my attention being directed to another part of the country, and to different diseases. I was led to doubt the propriety of large portions of calomel, or of that substance in cathartic doses; for isolated cases occasionally presented themselves to me, which soon yielded to very simple treatment. I used either no calomel at all, or but small quantities, largely combined with anodynes. Again, in 1849, dysentery appeared, but associated with cholera. It was usually ushered in by the common symptoms of that disease, but differed by excessive *tormina*, and small evacuations of blood and mucus. Soon after these made their appearance, nausea and vomiting, if they had previously existed, became less urgent. If the discharges were copious, and the patients feeble, they soon sunk under them, unless speedily relieved. In the first attacks, some difference of opinion occurred in regard to diagnosis—some contending that it was not dysentery, but failed to show what it really was.

"Opportunity, however, soon presented itself for *post-mortem* examination, and showed extensive inflammation of the mucous coat of the large intestines. In 1854, in the latter part of July or first of August, *i. e.* about the season of its invasion in '49, it reappeared here as before, accompanied with cholera.

"Some cases of cholera ran through their course well marked and free from symptoms of dysentery, in our place, while in the adjoining neighborhood, dysentery prevailed extensively without cholera. Sometimes a few cases of distinct cholera appeared, and then gave place to the other affection; but I did not know of the two occurring in the same locality at the same time. My own observations, and those of others with whom I have conversed, agree that the form of dysentery seen here is more common at a distance from large bodies of water, while cholera is principally

confined to their proximity; perhaps because the latter is a more violent effect produced by *the exciting cause* in a humid atmosphere. In some cases I have known (and it is too frequent to have escaped general observation), dysentery has assumed a distinct intermittent form, even taking on all the characters of common ague, and to be relieved by those remedies alone which are applicable to that complaint, thus proving its origin the same.

"In treating the form of dysentery which approximates cholera, I am constrained to use those remedies that prove most successful in that disease. I regard opium, in some of its preparations, as indispensable to the successful treatment of cholera, and am in the habit of using it in fearful quantities, to wit, eight, ten, or even fifteen grains at a single dose, in accordance with the state of the patient, and repeat soon, if it fails of its effect; being governed by the violence of the disease altogether, and not by the quantity of the drug. I would not be understood to depend upon opium alone, either in cholera or dysentery, which, as I have stated, I consider as one in cause, but not in degree or effect. There may be different indications to be answered, and usually are, which require varied treatment, but opium has been our sheet-anchor. I have not time to enter more into detail of my treatment of dysentery."

Dr. J. Paddack, of Pontiac, Oakland County, Michigan, communicates the following:—

"Dysentery, as it has prevailed in this section for the last twenty years, has varied much in its type. It has been attended at times with high inflammatory action, full pulse, and hot skin; at other times, it has assumed a low type, with small, frequent pulse, brown tongue, with dry skin, but not very hot. At other times, it has existed for several days without producing much constitutional disturbance.

"We include all those alvine fluxes that are attended with griping pains, frequent inclination to go to stool, with mucous discharges, tinged with blood—pure blood—or bloody serum; inasmuch as all these are frequently to be observed in the same case, and did occur with many patients in the summer and autumn of 1854.

"Tormina and tenesmus, which are so often described by authors, have not been usual through the progress of the disease. I have known several days pass in which there were no characteristics of dysentery, except bloody discharges. Then, suddenly, there would be severe pains in the bowels, with frequent inclinations to stool, with straining, as though an accumulation in the rectum should be

expelled. The bladder soon became irritated, evidently sympathizing with the rectum, through reflex nervous action.

"Dysentery sometimes commences with liquid stools, containing more or less fecal matter, which, after two or three days, may give place to mucous or bloody discharges, which continue a day or two longer, when abdominal tenderness, pain, and tenesmus are sure to supervene.

"The predisposing causes of dysentery are various. In 1834, when epidemic cholera prevailed, there were but few cases of dysentery. Severe diarrhœa, if treated by drastic purgatives, approached the dysenteric type occasionally. Since that period, epidemic *enteric disorders* have been more common, and when they have prevailed, we have had less of intermittent fevers, but not to their entire exclusion. In 1854, they were frequently associated in August, September, and October, dysentery being severe till late in the season.

"The months of May and June of that year were unusually favorable for vegetable growth, the weather being warm, with frequent showers. This was followed by severe drought and excessive heat. It was very healthy so long as the drought continued, but in August we had rain with extreme heat. Early vegetation had matured, and was ready for decay on the application of moisture, and dysentery soon began to appear, although mild at first and sporadic. In September, it became epidemic, but proved most alarming among children under six years of age, among whom it spread like contagion. Wherever it visited families, scarcely a child escaped its stroke. In the northern part of this county, where it prevailed most extensively, four-fifths of the children attacked are said to have died. In other parts of the county, having the same soil, abounding in silica, clay, and limestone, the disease seldom put on a malignant type; generally yielding to treatment in five or six days. In all other sections, adults suffered equally with children. Why the northern section of the county should suffer more than other parts, will perhaps, be difficult to explain.

"If malaria had been the cause of its malignancy, why should it not have been equally severe where intermittents prevailed the most? My opinion is that it depended chiefly upon the bad state of the water used by the inhabitants.

"Most of the wells and springs were so far dried up that the water necessarily became impregnated with impurities, and, after the rains,

hey were replenished by water which had flowed over a surface covered with decaying vegetable matter. It was then that the disease burst out in its greatest fury, and, in many instances, defied human agency.

"Thus it continued till kind Nature sent her healing frosts and stayed the pestilence. The following cases will illustrate the facts, as above set forth, in part:—

"Aug. 4, 1851. Mr. R. C. was taken with chills and fever, attended with diarrhœa. The fever did not run high; stools were frequent, slightly bilious, &c. Aug. 5, I found that dysentery had made its appearance. The stools were more frequent, and consisted of mucus tinged with blood. The abdomen was sore, and the fever more severe, with extreme restlessness. All the symptoms had abated by the sixth day.

"Sept. 24, 1852. Called to see Miss S. H.; found the pulse frequent; a slight fever; and frequent sero-mucous dejections a little tinged with bile, attended by tormina, but no tenesmus. On the 26th, some blood appeared in the discharges, and thus the case continued for about six days, when great gastric irritability supervened, with tenderness of the abdomen, tenesmus, and great prostration.

"Almost everything was rejected by the stomach immediately. The stools, for several hours, would be frequent, then there would be a remission of the severity of the symptoms for awhile; and, again, the irritation of the stomach would begin, and that of the bowels soon be aroused. The vomiting was most alarming and obstinate, being followed by extreme prostration.

"A drop of water was as promptly rejected as medicine, and emesis would also occur at about the same intervals, if left entirely at rest. A single drop of *creasote* in solution of gum Arabic administered once in two hours, seemed finally to subdue the emesis. Each interval being longer as the doses were repeated. The bowels were also relieved and convalescence established in five or six days.

"Mr. H. (father of the last named), living in the same house, had diarrhœa eight or nine days. The passages were sometimes streaked with blood. He seemed to have all the characteristics of dysentery except tenesmus. The abdomen was tender on pressure; pulse about ninety-five, and easily compressed; skin not very dry; temperature a little increased; tongue brown, rather dry, and coated. He had been treating himself with stimulating remedies. I directed

anodynes, creta pp., and alteratives, by which the dysenteric evacuations seemed to improve for a few days, but the pulse became more feeble, perspiration frequently profuse, and, stupor coming on, he died about six days after my first prescription. I have no doubt that the stimulating remedies used in the early stage of the disease aggravated the case, increasing the inflammation of the mucous coat of the bowels, and introducing the typhoid symptoms, which were not common in contemporary cases.

"In 1854, dysentery and intermitting fevers were oftener associated than formerly.

"Aug. 5, 1854. Visited Mr. B——; found him in a paroxysm of fever; said he had had two paroxysms at tertian periods before this. Ordered febrifuges, and an aperient at bedtime. *6th.* Free from fever. ℞. Quinine, grs. ijss every two hours. *7th.* No fever: evidently convalescent. *8th.* Attacked with dysentery; fever now returned in *remittent* type; abdomen tender on pressure.

"The dysentery would sometimes alternate with diarrhœa; both subsided after the sixth day of this form of action.

"Mrs. B—— (wife of the last described) and four children suffered similarly, except that one had *typhoid* fever, from which she recovered after an illness of thirty days.

"*24th.* Visited Mr. L——; found him laboring under fever, of which he said it was the fourth paroxysm occurring on alternate days. The tongue was furred; complained of bad taste in the mouth. Ordered blue pill at night, by which the bowels were evacuated the next day, when he was found with cool skin, and feeling much better. Ordered quinine 2½ grs. every two hours. *26th.* No fever; but complaining of griping pain and diarrhœa; prescribed accordingly. *27th.* Severe dysentery had set in, from which he recovered, after an illness of twenty-five days.

"During the same month was called to see Mr. O——, who had severe pain in the abdomen; frequent inclination to go to stool, with liquid, sanious discharges, with fever, which had been preceded by a chill. Febrifuges and the usual remedies for dysentery were given. Diarrhœa and dysenteric discharges alternated, attended by fever, which assumed the typhoid form about the tenth day, when the dysentery subsided. Typhoid fever, with occasional diarrhœa, continued fifteen days longer, from which he gradually recovered.

"The above cases suffice to give some idea of the varied forms of the disease. Children of every age were equally subject to an attack. In some families, the severity was very various. Gene-

ally, those who were not treated before much constitutional disurbance came on, either died or convalesced *slowly*.

"The treatment varied according to the appearance of the evacuaions and associated indications.

"If the pain were severe, I would give opium enough to relieve it. Fomentations of hot water should be thoroughly applied. If no bile appears in the dejections, I give calomel, or hydr. c. cretâ, until bilious stools are procured. Then Pulv. opii, gr. i; cretæ pp., grs. xx, every four hours. If there is much fever, add as much ipecac as the stomach will bear. Enemata of tepid water should be used every three or four hours, in order to relieve the frequent desire to go to stool. If the discharges are copious and of bloody serum, astringents are useful, and I deem acetate of lead the most efficient. In chronic forms, small doses of 'turpentine' every four hours are useful.

"If the patient has sufficient strength, a hip-bath twice a day will afford much relief, and should not be neglected. The temperature should vary according to the sensations. Begin with 95 degrees Fahr., and lower daily, if the patient can bear it, to about 70 degrees. The bath should be followed by frictions with dry cloths as much as can be borne without fatigue."

C. M. Stockwell, M. D., of Port Huron, St. Clair County, Mich., reports as follows: "Dysentery has been quite rare, occurring mostly in June and July, as a sporadic disease, and less than one per cent. of fatal cases.

"The treatment varied with the apparent primary cause, generally guided by the malarious character of the district. Astringents have appeared to be worse than useless; while quinine, opium, ipecac, and hydr. c. cretâ, have been uniformly and speedily successful. Cases have, of course, arisen demanding variations, more particularly during the summer of 1854, while cholera was most rife in neighboring places. In cases showing any choleraic tendency, a cathartic of hydr. c. cretâ rhubarb, and soda, followed by a comp. tincture of rhubarb, camph., myrrh, catechu, cinchona, and capsicum, was prescribed with great success. In some cases that had, by a previous lengthy course of unsuccessful treatment become chronic, nitrate of silver, *per os et per anum*, was prescribed. When acidity existed in the primæ viæ, with frequent gaseous eructations, carbo ligni pp., administered in milk, gave relief.

"In a number of instances, distinct periodic intermissions occurred, often preceded by chill and fever, or succeeded by genuine ague.

Dr. S. knew of no definite limit to these characteristics. The country is mostly level; the soil a clay loam, with alternating sand-bars, or ridges. The water used is hard, taken from off Lake Huron, containing a large percentage of calcareous salts in solution.

"The developments of disease were much more active during a succession of hot days, and in damp localities, as along the low margins of streams."

Dr. R. C. Newton, Algonac, St. Clair County, Mich., writes: "A few cases of dysentery occurred here in July, August and September, 1854; most of them in August. The season was very dry, and when the fall rains had set in, it disappeared. All the cases were associated with intermittent fever. None were fatal, and very few were in anywise obstinate.

"The surface of our part of the country is low, abounding in marsh and malarious influence. Treatment, at first, hydr. chl. m. grs. x or xv, followed by castor oil with tr. opii gtt. xv or xx. After the operation of which, the following: ℞. ipecac. pulv. ℈ss; hydr. submur. grs. iv; sulph. morph. grs. ij; acet. plumb. grs. xij. Misce. In chart. xij div. S. Unum omn. sec. horâ. With this, I usually subdued the bowel affection in one or two days, and then gave quinine as in common intermittents."

Further information in regard to the topography of Algonac and vicinity, has been received from Dr. H. Taylor, chairman of this committee:—

"The village is pleasantly situated on a peninsula formed by a bend of St. Clair River, by which extensive marshes are formed.

"These, however, are thought to be rendered less fruitful sources of miasm by the frequent rise and fall of the water occasioned by the winds. By this means, the marshes are often washed and cooled.

"The water used for culinary purposes is mostly taken from the river, a majority of the inhabitants living near its margin. River water is believed to be very healthy."

By the courtesy of the officers of the Michigan Southern Railroad Company, the compiler of this report has been enabled to visit several villages, lying on the line of the road, in search of material.

Three causes have, in part, diminished the interest of this collection, to wit: first, the fact that there had been but little dysentery in this section for several years; second, we met with no physician who had kept any notes of a scientific character; and third, time would not allow us to go far, in refreshing memory,

by searches among non-professional witnesses, and business accounts. We shall endeavor to give impressions, and information received from those physicians with whom we had the pleasure of meeting, relying upon brief and hasty notes made at the time, and if our accounts do violence to the facts or opinions of any, we shall be most happy to see a correction, or aid in its promulgation. Although the reports do not possess the desired exactness, we think there are some useful hints which might have been vastly augmented, had correct diaries been kept by our informants.

Adrian, Lenawee County. Dr. Hoyt had seen dysentery common in this vicinity, in summer months, but never epidemic. Dr. H. rarely had found mercurials necessary, but did not wholly discard them. Ipecac, *ad nauseam*, was generally sufficient to relieve the congestion and torpor of the cutaneous and chylopoietic viscera; and, subsequently, in smaller quantities, combined with opium, it guided the case to successful issue, by the aid of alkalies, *pro re nata*. Enemata of tepid water, or starch, and external stimulants, he considered of paramount importance.

His Excellency Dr. Spaulding, Mayor, &c., informed us that dysentery was not common in the earliest settlement of Lenawee County. In 1847, it usurped the place of remittent and intermittent fevers as an endemic disease, and that the old forms had not been precisely re-established; less of the asthenic type, or purely periodic, had been seen, and more tendency to local inflammation. His treatment of dysentery had been similar to that for the other forms of miasmatic disease, with the variations necessary for the local affections, *i. e.* mercurials cautiously administered, but sufficient to produce distinct alterative action. Opium was generally combined. Quinia was introduced as soon as apyrexia permitted, and facilitated recovery. The elevation of Adrian is about the mean height of the county, viz: not far from 290 feet above Lake Erie.

This county is on the eastern slope of the State. The streams are not rapid, but have sufficient fall to insure perfect drainage and healthy currents, when cleared of accidental obstructions.

In the eastern part of the county extensive deposits of clay render the digging of wells a labor of considerable magnitude in some localities, and the quality of the water obtained is doubtful; for instance, if found in the midst of clay, the supply may be through a fissure and lasting, or directly from the surrounding surface and uncertain, but if found in a stratum of sand, or gravel, twelve or more feet below the surface, the supply was pure and abundant.

Hudson, on the west side ef Lenawee County, is ten miles east of the summit ridge, in a section generally healthy. Elevation about 1,100 feet.

Dr. S. M. Werts, who had resided here since 1839, had seen no epidemic dysentery in this vicinity. In 1846-7, dysentery was more common than before or since, but was not severe. Dr. W. used, in this disease, "calomel and creta prep.," with opium. Desired to see in his patients evidences of slight mercurialization. He did not catharticize his patients often. There are not many marshes nor small lakes in this vicinity. Diseases usually styled miasmatic are not very prevalent in this region.

Dr. D. P. Chamberlin, of Hudson, in a letter to the Chairman of this Committee writes, concerning the west tier of townships of Lenawee County, and the east tier of Hillsdale county, as follows: "We have not been very much afflicted with dysentery in this vicinity; it has prevailed here only once as an epidemic during the last ten years, viz: in August and September, A. D. 1848. Sporadic cases have occurred since. The mortality has generally been from five to eight per cent. The treatment has been anodynes and astringents in the commencement of the disease; if farther advanced, alteratives with mild physic, as tinct. rhei, or castor oil. When there is evidence of ulceration of the mucous membrane, enemata of laudanum and starch, or a weak solution of nitrate of silver. In many cases I have used anodynes alone, but a favorite prescription has been tinct. opii, tinct. kino, and tinct. rhei, given often enough to partly control the action of the bowels.

"Many of our cases have been connected with chills, and quinia, in three to five grain doses for adults, frequently arrested the disease entirely.

"The face of the country is gently rolling, timbered land, with first-rate water. The prevailing diseases are malarious, but are less obstinate than formerly. There has not been any apparent connection with epidemic cholera."

Hillsdale, Hillsdale County. This village is about six miles west of the summit ridge. Sandstone formations underlie this section. The streams are usually pure, but water, whether found in streams, springs, marshes or wells, is highly charged with lime. Sometimes no clay was found in excavating wells, but in a few places several feet, even twelve feet had to be penetrated. Depth of wells fifteen to forty-five feet.

Miasmatic diseases are the prevailing type in this section.

Dr. J. N. Mott informs us that sporadic dysentery had been frequently seen since 1852, which was about the first of his observations in this vicinity. In October, 1854, this affection was more common and more severe. Dr. M. thinks mercurials generally advisable, but puts greater reliance on opium. Astringents he uses as collateral aids, but not early in the disease. We have also learned from a non-professional but reliable source, that dysentery was epidemic in this vicinity in August and September, 1850, the ratio of mortality being very great.

Jonesville, Hillsdale County. To Drs. Andrews and Brewer we are indebted for the following: "Dysentery has been rare in this section, and generally mild. The years 1847–8 formed exceptions; *epidemic dysentery* prevailing in a severe form. From recollection, they believe the mortality among children amounted to 50 per cent. The epidemic seemed to supplant the usual remittents and intermittents, and was most severe in localities favorable to that form of disease, as in marshes or streams, and also where oak openings bordered on heavily timbered land. This epidemic extended, in the knowledge of these gentlemen, some eight or ten miles around Jonesville, leaving the community healthy when it subsided. In 1850, dysentery was also common, but not so severe, except among those who tampered with nostrums and quackery. Mercurials were essential early in the affection. Opium, sufficient to allay pain and tenesmus. When some alterative action was excited, astringents were used. Especial value was set on nitrate of silver, *per os et per anum*, in the subacute or chronic forms.

"The face of the country is rolling, mostly oak openings, where the soil is sand loam; occasional strips of timbered land, generally clay loam. A stratum of silicious rock, which disintegrates rather rapidly on exposure, is found near the surface in some places."

Coldwater, Branch County. Dysentery was epidemic here in 1840, and very severe, with a large degree of mortality among children. In 1850, epidemic dysentery was contemporaneous with bilious remittent fever. Dr. S. S. Cutler has followed saline treatment with much satisfaction, to wit, occasional cathartic doses of saline mixtures to expel offending matter and relieve congestion, and smaller portions subsequently as febrifuge. He uses opium to relieve tenesmus if necessary; does not discard mercurials, but thinks uncomplicated dysentery not sufficient indication for their use. Astringents are of doubtful efficacy, in his opinion, except when the disease assumes a blennorrhagic character. He believes

great injury often results from their use. During the winter of 1850 and '51—which was the first of our own residence in this village—we saw a good many cases of chronic dysentery appearing as *sequelæ* of the remittent fever, which had been very severe during the preceding summer and autumn. Many patients bore evidence of indigence; and suspecting that improper ingesta during convalescence had produced the disease, and impaired the assimilative functions, we prescribed oleum jecoris aselli, sometimes combined, *pro re natâ*, but often alone, with gratifying success. In August, 1852, sporadic dysentery was more common than usual in this vicinity. A majority of the cases were in persons peculiarly liable to miasmatic affections, either from idiosyncrasy, recent immigration, or dwelling in proximity to swamps or *flat streams*. Some had distinct ague at the same time, but the season was rather remarkable for exemption from intermittents. In our own practice, pretty free use of ipecac, with enemata of starch and laudanum, proved effectual in all cases but one; that was a child, which had suffered from some chronic disease of the bowels for many months previous to the attack, and which resisted the use of the syringe too stoutly for the firmness of the parents. The patient was not emaciated by the former disease. About an equal number of adults and children were under our care. Being ourselves a victim, injections of pure cold water were used with advantage, but not as decided as we witnessed from the medicated enemata of our patients. The pain caused by cold enemata was sometimes very severe at first, extending through the whole pelvis and loins. We would not advise *full* injections of a temperature below 50° F. for children.

In the latter part of July, 1853, dysenteric symptoms supervened upon diarrhœa; the exciting cause of which, in a majority of cases that came under my care, was eating whortleberries, which were very abundant and fine. Peaches, which were not very fine, disturbed the bowels more frequently than we have ever known before. The atmospheric influence was exhibited, however, by continuance of diarrhœa, with occasional dysenteric symptoms, until September, when they seemed to merge into bilious, remittent, and intermittent fevers, pneumonia, &c., some cases appearing in October.

In the treatment of the different forms of intestinal disorder, it has been our first aim to quiet the existing distress. If referred to the stomach, morphine, or tr. opii, with alkalies, if indicated; or if nausea and vomiting were troublesome, hydr. chl. mite. When

the small intestines were the seat of disease, pulv. opii, generally pure, but occasionally combined, *pro re natâ*. If the large intestines suffered most, opium in coarse powder, or pills, or in enema.

Subsequently, relying on narcotics to subdue the pain (sometimes in very large doses, as grs. iv. *omn. tertiâ hor.*), and counter-irritation by chloroform, or sinapisms applied to abdominial or lumbo-sacral regions, we meet torpor of chylopoietic viscera, strangury, constipation, or other accidental affections, in nearly the same manner as if unattended by enteric disorder. Calomel and cathartics may be needed, but we think their administration requires great caution. Sinapisms at first, and epispastics in the latter stages, have seemed more important than anything else except the anodyne, although astringents in the fluxes have seldom been omitted. Our most common formula of this class is tr. opii and catechu, āā pt. eq., and if the inflammatory symptoms do not prohibit, tr. zingiberis may be advantageously added.

We believe that the continuance of abnormal evacuations, after the exciting cause and inflammatory excitement of the pulse are removed, is sufficient indication for the use of astringents, and even tonics, if the general debility requires attention. When tympanitis or severe tormina occurred, we saw great relief from spts. terebinth. applied to the whole abdomen by saturated cloths. We endeavored to have the strength of our patients sustained by mucilages, as usual, and by essence of beef, beef-tea, or broths, sometimes combining them with tr. opii, camph. in nearly equal parts, and the paregoric was sometimes continued with each meal till convalescence was well established. One patient having used peach pits in former times for pyrosis, tried them during convalescence to prevent gastro-enteric irritation, and expressed entire satisfaction. His dose was from three to five blanched kernels, bruised, and taken at, or soon after each meal. We have always considered rest, in a horizontal posture, as absolutely indispensable in dysentery of severe grade.

In 1853, the enteric disorder was often attended with persistent nausea, thickened tongue, showing the impress of the teeth, and covered with dark yellow fur. Mercurials came more frequently in requisition than during previous years. *Calomel cum cretâ*, finely *levigated*, was the form usually prescribed.

In 1854 but few cases of dysentery came to our knowledge in this immediate vicinity. Where it did appear, it was generally a sequel

to, or a complication of cholera morbus, diarrhœa, fever, or cholera asphyxia. One infant died under my care having tertian ague and dysentery. The ague preceded the dysentery several weeks.

Other similar cases have been described to us by neighboring physicians. Dr. Furgerson, of Ovid, attended several with these complications in a strongly miasmatic district. It is impossible for us to ascertain the ratio of mortality. The sexton, who has made nine-tenths of all the interments in this village, has recorded the reputed cause of death in nearly all cases; knows of none from this disease.

Four deaths by cholera occurred in our village, and several other attacks were early relieved, or merged in different diseased actions. One patient, male, æt. 56, spare and muscular, was attacked with well-marked symptoms of cholera, and continued to evacuate copious watery stools during the first week; in the second week, they became of more consistence, but fermented, resembling yeast; in the third week, and during the last half of the fourth, they changed several times, appearing sometimes like chopped spinach, then like verdigris and water, again containing membranous shreds, or masses of fibrin, strongly resembling flesh, and anon blood, or mucus streaked with blood. Tenderness over sigmoid flexure of colon only, some tenesmus during most of the disease, and occasional severe tormina. Other pains in the abdomen not common; rectitis evidently present; urinary secretion little changed, sometimes flocculent; mouth aphthous; stomach inflamed, etc.; borborygmus common; tympanitis only once. Opium was used freely; calomel occasionally, in small doses; mucilages with the narcotics *per os et anum;* milk-punch, quinine, wine, etc., in convalescence, which was tardy.

Latitude 41.50°, longitude 85.30°; altitude 898 feet; on the western slope of this peninsula, soil alluvial, undulating, interspersed with prairies, both wet and dry; timbered land, and openings; water hard, but pure and plenty. Many of our wells not yet clear of curbing.

Union City, Branch County, Michigan. Epidemic dysentery, of severe grade, prevailed here in 1854. Dr. Wm. P. Hurd communicates the following:—

Dysentery began about the first of July, but the greatest number of simultaneous attacks occurred in the last week of July. The community were previously healthy, except a few cases of remittent and intermittent fevers. The infected district was about 15

miles from east to west, and 9 from north to south. Population about 2,000. Elevation above tide-water 863 feet.

The number of cases, as near as could be ascertained, was 232; 31 cases terminated fatally, *i. e.* nearly 13 per cent. There was no evidence of contagion. The disease gradually subsided about the last of October, no other disease being substituted. The water in wells was unusually low; many wells were curbed with wood.

W. P. H.

In regard to the supplies of water for culinary purposes, etc., we made especial inquiry, and ascertained that there was throughout the section an unusual deficiency. Most of what had been called "good wells" were so low as to be constantly riled; and in all instances, where we had an opportunity to inquire, the disease was most severe where wood curbing was still in the wells, sometimes behind a brick or stone wall. From the scanty supply of water, and the excessive heat of the atmosphere, the temperature of the well was higher, favoring decomposition of the curbing in addition to the usual evils of drought.

The face of the country is undulating; the soil sandy, except in a few localities where clay beds are found. Small marshes, where peat or marl is covered with growths of grass, willows, cranberries, or whortleberries, seemed to exert no influence upon the epidemic. The extent described by Dr. H. would include an elliptical tract of about thirty miles circumference, having the junction of the Coldwater and St. Joseph rivers in the S. E. focus. A few cases of *sporadic* dysentery occurred at Secousia, Calhoun County, seven or eight miles N. of E., but some of the features of this epidemic were wanting, we think. There are several small streams in the section, pure but not rapid. During the time of the epidemic, the water in these was very low, or the beds dry; but we have not learned of any unusual scent emanating therefrom, except at Union City, where some damaged fish had been thrown into the river, above the bridge, early in July. A long time after men ceased to detect any offensive smell, some horses would not drink below the bridge, but hurry to the stream above, and drink heartily; although this may not have been the cause of the outbreak of the epidemic, it was an outrageous breach of the rules of public hygiene. The first cases of dysentery occurred in this vicinity, but not very near, nor in the nearest houses; but difference of susceptibility might account for this. In this vicinity also occurred the greatest number of cases,

but this does not fix suspicion, because here was the most of the population. The river is about forty feet below the level of the surrounding country; its bed gravelly through most of this section, but fine sand rock of soft texture crops out on the Coldwater River a mile or two from its union with the St. Joseph.

Kidney ore, yielding a large per cent. of iron, is plenty in this region. Miasmatic affections have always been the prevailing type here. No epidemic of severity has ever visited this region before. It is perhaps worthy of note, that one of the deaths most remote from the centre, was of a lady whose husband had been almost daily among the sick, as homœopathic physician. This man appeared at first, to have remarkable success in the disease, with what looked like opium and potass. nit., in large doses; but having only empirical skill, he could not vary his treatment with changing indications, and his fame waned for want of symptoms to suit exactly his formula. During the last week of August, and first of September, we had strong winds nearly every day, from the east in the morning, and keeping with the sun, until about the middle of the afternoon, when a perfect calm rendered the heat exceedingly oppressive. The evenings were so cool, as to render thick clothing necessary for comfort.

Dr. Hurd writes in regard to symptoms, etc.: "The disease commenced inmost cases, with diarrhœa. Discharges were light colored and watery, which continued in some cases twelve hours, and in others, two or three days, when they became colored, assuming the appearance of beef brine, which usually continued several days, and if the disease did not yield to remedies, they became mucous mixed with blood and membranous shreds. In many cases there was constant sickness at the stomach, with vomiting and retching, which was very difficult to restrain. Constant fever (remittent) attended many cases with dry, brown or red tongue—hot and dry skin; pulse small, hard and frequent; sometimes becoming very feeble, a few days after the attack. The urine was generally high colored, and scanty. In about one-third of the cases, the discharges were bloody from the commencement; the skin, cool and clammy, livid or purplish about the eyes and lips, almost constant desire to use the stool, with severe tenesmus and tormina, abdomen tumid and tense, with great tenderness upon pressure; some patients had distinct rigors with fever, succeeded by general diaphoresis assuming the full type of intermittents.

"In most of the cases that terminated fatally, the fever became

of typhoid character,* and one patient lived six weeks; the disease assuming a chronic form with extreme emaciation, and the skin becoming as dark as a mummy."

Dr. H. says, allopathic, homœopathic, and eclectic† treatment were tried, but does not state their comparative success. Rumor, where we have been able to gather her statements, has not flattered partial systems. Dr. H. generally found bilious derangement; and when such existed, prescribed blue mass, or some other form of mercurials, with laxatives, or astringents, as circumstances required; enemata of different kinds were used generally. The above, with anodynes, constituted the principal treatment.

Burr Oak, St. Joseph's County. My informant, Dr. Parsons, had been here but a few months, during which time he had seen a few cases of sporadic dysentery. In one case there were marked typhoid symptoms. Miasmatic diseases are prevalent here, but of a mild form usually. The soil is sandy. Wells from twenty to twent-five feet deep. Water pure.

Sturgis, St. Joseph's County. Some cases of severe sporadic dysentery had occurred here. My notes of conversations with Dr. Taft and one other physician having been lost, I must beg of them to place the result of their observations directly before the public in future, to avoid carelessness. I cannot remember that any new facts or conclusions had been obtained. Soil, dark, fine, plastic loam. Wells twenty-five to fifty feet. Water pure and plenty.

White Pigeon. In this section "intermittent" and "remittents" are also common, but not severe. This region is traversed by several streams, but few have their origin here. Wells twenty-five to thirty feet deep; water in them pure and plenty.

Dysentery has not been common in this locality, but sporadic cases occasionally occur. Rather more than usual appeared in

* I saw one of the cases which had been of long standing, in which there were great prostration, brownish serous diarrhœa, and rose-colored spots. The patient recovered. Another patient, who was partly under my care, with similar symptoms, except the *spots*, who at times discharged purulent and depraved mucus, derived the greatest advantage from very large doses of opium, although idiosyncrasy seemed to forbid its use. Near thirty grains were given in twenty-four hours—he finally recovered.—B.

† The eclectic system, as practised in this vicinity, is the nearest approximation to scientific regular medicine, attainable with limited education. *Rationale* of treatment is too abstruse a question; and prescription by recipe of their leading teachers, or garbled from "Eberle," constitutes the highest achievement we have seen among them.—B.

August, 1854. These required alteratives at first; second, narcotics; and third, astringents.

Drs. ELLIOTT and COOK.

Constantine. This township contains about 1,400 inhabitants. The soil is generally sandy, but a large proportion of marsh is found in this vicinity. The general surface of the country is but little above the level of the streams, which are not rapid, and meander very much. Wells are from eighteen to forty feet deep, many of them curved. Water in them, hard and abundant generally. Elevation 678 feet. Typhoid forms of bilious fevers are very common. Dr. Thorn believes miasmatic diseases are more prevalent than in the earliest settlement of the country. Continued fever has been far more common since 1849.

[We are not surprised at this account when we reflect that much of the timber had been oak openings, the soil of which does not contain as much vegetable mould as heavy timbered land, and the sun's rays do not affect its humidity and decomposition materially; hence the first settlers did not suffer as in clearing heavy timbered lands. But when free communication with wet marshes, lakes, or streams having low banks, was opened by extensive clearing, miasmatic influences had wider range.]

In September and October, 1854, sporadic or endemic dysentery was very severe, sometimes complicated with typhoid or bilious fever. Dr. Thorn thinks near one-fourth of those attacked died. He gave the following as outlines of treatment which he found most successful, to wit: If considerable arterial excitement prevailed, venesection, *ad deliquium;* sometimes sixteen, or even thirty fluidounces were required.

The internal treatment consisted of pulv. Doveri or sulph. morph. q. s., to subdue pain, and follow, if further medication is necessary, with *sodæ nitrat.* grs. x, to be given every two hours, in two large spoonfuls of rice-water.

If hepatic congestion occurred, mild mercurials were used.

Three Rivers. This is at the junction of the St. Joseph, Portage, and Rock Rivers. The latter river is not named from any particular out-cropping of mineral strata on its course, but as Indian tradition says, from a single block of granite rock, of about 2,000 solid feet, lying near the mouth of the stream. The present name being a translation, "in brief," of the original tongue-twister, meaning "*the river of the rock.*"

Dr. Egar, an old resident here, informed me that dysentery was

epidemic here in 1840, and again in 1849. At the latter date, the mortality was very great among aged persons and children.

It spread over considerable extent of country, showing most virulence here and at Gull Prairie, a few miles distant. Excessive gastric disturbance was characteristic of the affection, but mucous and bloody stools, with excruciating tenesmus and tormina, were the predominant symptoms. In August and September, 1850, dysentery, as an *endemic* disease, seemed to be substituted for intermittent and remittent fevers.

Mercurials were generally useful at first, and either cut short the disease or ameliorated many of its symptoms. Calcined magnesia or powdered rhubarb, if evidences of acidity were not indicated, were useful in removing offending matter; and pulv. ipecac., or camphor with gum Arabic, helped to restore the cutaneous functions. Enemata of starch, with opium and sugar of lead, were highly beneficial. When alterative action was procured, tannin and quinia were administered with good effect. Dr. Choat, of this place, thinks that sporadic dysentery has been far more common since the fall of 1850, but has not been severe. Wells are from twelve to twenty-seven feet deep, and generally curbed with wood.

It will be observed that a marked difference exists in the facts and opinions detailed in this report and the report of the Committee on Epidemics of Tennessee, in regard to the occasional malarious origin of dysentery (see *Trans.*, vol. vi. p. 342 and vol. vii. p. 115), while they agree with the reports from Kentucky, in the same volumes, and with inferences which must be drawn from the report from the Miami Valley. (See vol. vii. p. 324.)

We have not attempted to review the bibliography of this subject, believing that if we possessed the means and ability to use them to advantage, this is not the proper place for the work. Neither have we made use of any of the valuable material which has adorned our periodical literature, and has thereby become the property of the whole medical public. What we here present, whether valuable or useless, would forever have remained latent, except for the action of the American Medical Association, and is most respectfully submitted.

H. TAYLOR, M.D.,
J. H. BEECH, M.D.

THE

EFFECTS OF ALCOHOLIC LIQUORS

IN

HEALTH AND DISEASE.

By R. D. MUSSEY, M. D.

THE EFFECTS OF ALCOHOLIC LIQUORS

IN

HEALTH AND DISEASE.

BY R. D. MUSSEY.

ALCOHOL, when taken somewhat diluted into the human stomach, produces a sensation of warmth, which is, in no long time, diffused among the several organs—accompanied by a general feeling of exhilaration.

The pulse, in half an hour to an hour, is sometimes accelerated to the extent of six to ten beats in a minute, while the respirations are but slightly, if at all, changed in frequency.

In certain conditions of the nerves, however, even small doses of distilled or fermented liquor operate as a direct sedative upon the pulse. I have a medical friend, who, in convalescence from an attack of hemiplegia, tried, by the advice of his physician, wine, and Huxham's tincture of bark. The taking of a teaspoonful of either of these articles, was very soon followed by a falling of the pulse from 52 to 48 and 46. This effect was uniform on repeated trials. At the same time, there was a confused and uncomfortable sensation in the head. The doctor soon laid aside these remedies, and recovered without them, on the blandest food.

It is several years since the hypothesis was suggested that alcohol, containing a considerable proportion of carbon, must be a valuable agent in sustaining the vital temperature, by being burnt in the lungs; this hypothesis, chiming well with social customs and individual appetites in almost every class, has widely prevailed.

Plausible, however, as this view may be, there is good reason to believe that it is not true.

If alcohol combine with the atmospheric oxygen admitted to the lungs in respiration, it is natural to ask: Why is there not at the

same time an increased exhalation of carbonic acid? But, so far from this being the fact, it has been clearly proved by the experiments of Dr. Prout and others, that the amount of carbonic acid discharged from the lungs while alcohol is in the circulation, is remarkably diminished.

From the experiments of Bernard, it is inferable that no *combustion*, as it is called, takes place in the capillaries of the lungs; "that oxygen is simply taken in, and carbonic acid given out; that the combustion occurs in the capillaries of the body, and that there heat is evolved; and that it takes place by means of the oxygen which enters by the lungs."*

Robin and Verdeil, in their *Physiological Chemistry*, take substantially the same view. They regard heat as the *result* of nutritive changes of all kinds, but not the *object* of them. It is developed principally in the blood.†

"Carbonic acid gas exists in the lungs, the blood, the alimentary canal, and the urine. The amount dissolved in the blood would be sufficient, in its gaseous state, to occupy from one-fifth to one-third of the space filled by the blood. There is more in arterial than in venous blood (123 to 100), as is the case with oxygen and nitrogen also. It is dissolved in both the serum of the blood and the corpuscles, while oxygen is dissolved principally, if not wholly, in the corpuscles. The fact of its greater amount in arterial blood, confirms the idea that it is formed in the lungs by the action of pneumic acid on the carbonates in the blood."

Bernard found the blood, in the right side of the heart, to be warmer than that in the left; and the blood in the ascending cava, just coming from the liver, a little warmer than that from the descending cava.

The function of the lungs, then, so far as at present understood, is to take atmospheric oxygen, and other gaseous or volatile substances, into the blood, to exhale a certain proportion of its carbonic acid, and other effete or foreign matters, and to cast off or absorb water, in proportion to its excess or deficiency in the circulation.

Indeed, we are deficient in evidence of the decomposition of alcohol in any part of the circulation, to afford material for maintaining the vital temperature.

* Dr. Walter Atlee's Notes of M. Bernard's Lectures on the Blood.

† Review of Robin and Verdeil, p. 199.—*Am. Med. Monthly.*

It is capable of existing for a length of time in the blood, and passes out by the kidneys, skin, and lungs. Dr. Percy found it in the urine; it is often observed in the perspiration; and who has not a thousand times smelt it, as it is poured from the lungs at every breath?

That it is capable of existing largely in the blood, is unquestionable. A medical friend of mine in New Hampshire, Dr. J. C. Hanson, more than twenty years ago, bled a man who had been drinking freely for three or four days. The halitus of the blood burned, for thirty seconds, with a blue flame, on the application of a lighted taper.

In the brain, too, according to Dr. Ogston and Dr. Hare, alcohol has been found so strong as to burn, upon the application of a taper.

When it is considered that the air-cells of a large pair of human lungs, laid side by side, and spread out in a single sheet, would cover a space of more than one hundred and thirty square feet, it is not difficult to conceive that this poison may be thrown out from the blood by the pulmonary exhalation and the other emunctories, without having undergone decomposition. And, from the readiness with which it unites with water, its expulsion from the system would, probably, be accelerated by a full supply of that fluid. It is notorious that laboring men, who make free use of distilled or fermented liquors, are more thirsty, and drink more water than those who drink water alone.

A large proportion of the alcohol introduced into the blood, must pass off without decomposition, as do chloroform and ether—which are, in some respects, analogous fluids—since they all darken the arterial blood; and if, under special circumstances, decomposition does occur, we yet lack full evidence of the fact. From the experiments of Dr. Prout, it is plain that alcohol so interferes with, or perverts the healthy vital processes as to cause the blood to retain an undue proportion of carbonic acid; for the doctor found that after the alcoholic influence of the wine, taken with his dinner, had passed off, the exhalation of this acid recurred, in a degree, considerably above the ordinary standard.

It is stated that the air in a diving-bell is sooner exhausted when the diver has taken distilled or fermented liquor, than when his drink has been water only. This being the case, it should seem that the alcohol, in some way, possibly by decomposition,* steals

* *Vide* Appendix.

away the oxygen of the blood to no useful purpose, but to its detriment, as it interferes with the escape of its effete materials.

The very interesting and valuable experiments of our countryman, Prof. N. S. Davis, have gone a step further. They exhibit a manifest diminution of the vital temperature under the influence of alcohol.

"In the year 1850," says Dr. Davis, "I devised a series of experiments designed to test more fully the effects of alcohol on the functions of respiration, circulation, and animal heat. These experiments, commenced in the winter of 1850, have been continued from time to time since. The apparatus for performing the experiments consisted of a glass tube, graduated so as to indicate the fractions of a cubic inch; a very delicately graduated thermometer; a mercury bath; and solution of caustic potash.

"With these arrangements, and an intelligent assistant, in a room of equable temperature, about three hours after any food had been taken, from three to four ounces of the best brandy that could be procured was administered. But, previous to administering the brandy, the temperature of the body was carefully noted, by inserting the bulb of the thermometer under the tongue, with the mouth closed around it for several minutes. A certain number of cubic inches of expired air was also collected in the graduated tube over mercury, and transferred from this to the bath of caustic potash, by which the amount of carbonic acid was rapidly absorbed, and its quantity indicated. Having ascertained and noted the temperature of the body, the proportion of carbonic acid in the expired air, and the frequency of the pulse before the brandy was taken, these same observations were made, in precisely the same manner, every thirty minutes after, until three or four hours had elapsed. In some of the experiments, brandy was used as a representation of the stronger distilled liquors; and in others, port wine was used, in quantities of eight ounces at a dose, to represent the fermented liquors.

"The results of all my observations may be summed up as follows, viz:—

"1st. The most direct and obvious effect of alcohol on the human system is, to excite or exhilarate the functions of the brain, and increase the rapidity of the heart's action. This effect begins to be manifest within thirty minutes after the liquor is taken; and, if the dose is not repeated, perceptibly declines in from one and a half to two hours. It is the exhilarating influence of the alcohol

on the brain and nerves, that gives it its fascinating power over the human appetite and passions, and has induced in the popular mind the general idea that it is actually tonic, or supporting to the functions of life. The stimulant effect on the vascular system is much less than on the nervous; the pulse being increased, in my experiments, not more than from six to ten beats per minute, while its fulness and force both remained unaltered.

"2d. It directly diminishes the amount of carbonic acid gas thrown off from the lungs in the expired air. This diminution begins to be apparent in less than one hour after a single dose of alcoholic liquor, and becomes more and more so, until the end of two hours; when the proportion of carbonic acid begins again to increase, and, at the end of three hours, comes fully up to the natural proportion. The amount of diminution of carbonic acid varied in different experiments, but was well marked in all. In some instances, it was diminished, for a short time, more than fifty per cent. below the proportion when the experiment began.

"3d. In all my experiments, the temperature of the system began perceptibly to diminish at the end of one hour, and continued to do so during the two succeeding hours, the mercury generally standing *three-quarters of a degree* lower, at the end of three hours, than when the experiment began. And, at no period of time, while the effects of the alcoholic beverage remained perceptible, was there any increase of temperature indicated by the thermometer."

These results aid us in explaining a truth well known to men of observation, in cold climates, that the human frame has less power of resisting cold under alcoholic influence, than when free from it. The apparently discrepant fact, that it blunts or destroys the *feeling* of cold, is fully compatible with the absolute diminution of temperature. Alcohol is a temporary excitant of the nerves, causing, like friction, or other mechanical irritation, a sensation of warmth, or glow; and if, under a temporary acceleration of pulse, there be an evolution of caloric above the normal standard, it is a no more necessary deduction that the alcohol, by decomposition, furnishes its material, than that such material is supplied by other stimulants or excitants which give the *sensation* of heat—as do the aromatic oils, or mustard, or mechanical irritation.

Whatever relations alcohol may sustain to the blood, and to the vital movements of the capillary vessels, it is plain that it diminishes their ability to withstand cold, causes a diminution of

the proportion of carbonic acid thrown off by the lungs in health and so perverts the sensibility of the nerves as to render them incapable of correctly reporting external impressions.

A man in liquor may freeze to death, without any strong or painful perception of cold.

Sir John Ross's voyage, from 1829 to 1833, was remarkable in its exposures and hardships, and in the fact that only three persons died, in a crew of twenty-three. This exemption the commander attributes to unusual precaution, and *especially to abstinence from intoxicating drinks.* He says: "It is difficult to persuade men, even though they should not be habitual drinkers of spirits, that the use of these liquors is debilitating instead of the reverse. The immediate stimulus gives a temporary courage, and its effect is mistaken for an infusion of new strength. But the slightest attention will show how exactly the reverse is the result. It is sufficient to give men under hard and steady labor a draught of the usual grog, or dram, to perceive that often, in a few minutes, they become languid, and, as they term it, faint; losing their strength, in reality, while they attribute that to the continuance of their fatiguing exertions. He who will make corresponding experiments on two equal boats' crews, rowing in a heavy sea, will soon become convinced that the water-drinkers will far outdo the others.

"It is not that I am declaring myself an advocate for temperance societies, whatever may be their advantage, nor that I am desirous of copying a practice lately introduced into some ships, under whatever motives; but, were it in my power, in commanding a vessel, I would exclude the use of grog, on the mere grounds of its debilitating effects, and independently of any ulterior injury which it may do; reserving it for those cases alone in which its use may be deemed medicinal, or, for any special reason, useful."

Sir John Ross also speaks of "grog," as causing inflammation of the eyes, and as aggravating snow-blindness; and of abstinence from its use as a preventive of scurvy. This opinion and testimony may be considered as reliable, inasmuch as it is founded on no sympathy with the temperance reform.

Alcoholic drinks diminish *muscular power.* The well-known case of our countryman, Dr. Franklin, is in point. He could carry heavier weights, and had a greater power of endurance of labor, on his beverage of simple water, than his beer-drinking companions in a London printing-office.

The Turkish porters at Constantinople and Smyrna are cele-

brated for strength. "The boatmen and water-carriers of Constantinople are decidedly, in my opinion," says Mr. W. Fairbairn, an eminent machinist at Manchester, "the finest men in Europe, as regards their physical development, and they are all water-drinkers."

My friend, Captain S. Rea, who, twenty years ago, frequently visited Smyrna, assures me that he has never witnessed such feats of strength as are exhibited by the porters there. In unlading vessels freighted with Havana sugar, each porter carries a box of sugar upon his back from the vessel to the storehouse; and this is done all day, without complaint. The weight is over four hundred pounds. As their pay is in proportion to the weight of their burdens, Capt. R. has frequently seen them call for a bag of coffee, to be placed upon the box of sugar, and, in one instance, for two bags—the weight being about seven hundred and fifty pounds: and, what is still more extraordinary, from the office of Mr. Offley, the American agent there, a porter was seen carrying a load of boards, so large that the individuals present had the curiosity to detain him, and have it weighed. Capt. R. saw it weighed, and paid his proportion for the gratification. The weight was nine hundred and five pounds. The drink of these porters was nothing but water—and bread the staple article of food.

The Hon. Mr. Buckingham assures me that he has frequently seen those Himalaya mountaineers, who are trained to athletic exercises, pitted against English grenadiers, in running, leaping, carrying of weights, and throwing of missiles; and that one of them was equal in strength to two and three-quarters of the English. Their sole drink was water, and their food rice.

In 1786, Jaques Balmat, that enterprising guide at Chamouni, who had long entertained the project of being the first to reach the summit of Mont Blanc, made the attempt, provided with food and a small bottle of brandy. He gave out long before completing the ascent, and returned. He next carried a bottle of wine with his food. This attempt failed also. A third time he took water only for his drink, and succeeded in planting the first human foot upon the summit of that far-famed mountain.

Dr. Carpenter gives us the following statement of a coal whipper: "It's food only that can give real strength to the frame. I have done more work since I have been a teetotaler in my eight years, than I did in ten or twelve years before. I have felt stronger. I don't say that I do my work better, but this I will say, without fear of successful contradiction, that I do my work with more ease

to myself, and with more satisfaction to my employers, since I have given over intoxicating drinks. I scarcely know what thirst is. Before I took the pledge, I was always dry; and the mere shadow of the pot-boy was quite sufficient to convince me that I wanted something. I certainly have not felt weaker since I have left off malt liquors. I have eaten more and drank less. I live as well as any of the publicans do; and who has a better right to do so than the man who works? I have backed as many as sixty tons in a day since I took the pledge, and have done it without any intoxicating drink, with perfect ease to myself, and walked five miles to a temperance meeting afterwards. But before I became a teetotaler, after the same amount of work, I should scarcely have been able to crawl home. I should have been certain to have lost the next day's work at least; but now I can back that quantity of coal week after week, without losing a day. I've got a family of six children under twelve years of age. My wife's a teetotaler, and has suckled four children upon the principle of total abstinence. Teetotalism has made my home quite happy, and what I get goes twice as far. Where I work now, four of us out of five are teetotalers. I am quite satisfied that the heaviest kind of work that a man can do, may be done without a drop of fermented liquor. I say this from my own experience. All kinds of intoxicating drinks are quite a delusion. We teetotalers can do the work better, that is, with more ease to ourselves, than the drinkers can. Many teetotalers have backed coals out of the hold, and I have heard them say, over and over again, that they did their work with more comfort and ease than they did when they drank intoxicating drinks. Coal-backing from the hold is the hardest work that it is possible for a man to do. Going up a ladder sixteen feet high, with 238 lbs. weight upon a man's back, is sufficient to kill any one; indeed, it does kill the men in a few years—they're soon old men at that work."

The influence of alcohol upon the *organization* is thus concisely indicated by that high chemico-physiological authority, Dr. H. Bence Jones:—

"In addition to the stimulating action of alcohol upon the muscular structures and nerves, it acts through the circulation on every tissue. It produces a chemical effect. This is best seen when it is used for the preservation of morbid specimens. Even in the living body this action may be observed, but it cannot be separated from the effect produced by the stimulating action. Thus, alcohol

hardens the skin, when applied locally. It hardens and thickens the stomach. When long continued, it thickens the cellular tissues of the liver. It passes off by the lungs and kidneys, and affects both organs. Ultimately, it lessens the amount of carbonic acid expired, and hinders the removal of the products of decomposition by the urine. It changes the composition of the blood, and affects the nutrition of every organ and structure of the body. It has its own peculiar poisonous action on the muscles and nerves. As a poison, it has been placed, by its effect on the nerves and muscles, between ergot of rye and arsenic."

And these, with kindred effects of its habitual use, are strikingly illustrated in the cases collected by Dr. Ogston. "These are *post-mortem* examinations of seventy-three intemperate persons, who came to sudden death; 42 by drowning, 5 by hanging, and 1 by suffocation. 20 of them were instances of violent death, either by syncope or by direct coma, speedily fatal, without vital reaction. The remaining 5 were cases of rapidly fatal coma from narcotic poisons. Of the whole, 25 were known to be cases of suicide, 13 of homicide, and 18 of accidental death; leaving 17 who must have died either from accident or suicide."

"Abnormal appearances within the cranium in 65 cases, or 89 per cent. of the whole. Brain indurated in 26 cases. Abnormal appearances in the respiratory organs in 41 cases, or 56.16 per cent. of the whole.

"Abnormal appearances in the pericardium, heart, or aorta, in 30 cases, 41 per cent. of the whole.

"Abnormal appearances in the stomach in 20 cases, or 27.3 per cent. of the whole.

"Of the intestines, 10 cases, or 13.6 per cent. of the whole.

"In the liver, 30 cases, or 41 per cent. of the whole.

"In the spleen, 14 cases.

"Pancreas, 1.

"In the kidneys, 33 cases, or 34.5 per cent. of the whole.

"In the abdomen, 54 cases, or 73.9 per cent. of the whole.

"An entire absence of morbid appearances in the body in one case."

Time would fail to trace, with any degree of minuteness, the effects of alcoholic beverages upon the *intellect* and the *moral sense.*

A certain dose of wine or spirit increases the propensity for conversation; a little more causes garrulity; a further addition makes a vociferous exhibition of the thoughts, which run out

without order or regularity. You will see two friends, after sitting an hour at a dining-table well supplied with wine, talking into each other's face with great vehemence, neither seeming to pay the least regard to what the other is saying. Among the uneducated, but by no means among that class alone, alcohol begets in company a remarkable freedom of demeanor, exhibited by one's spitting in his neighbor's face, breaking his nose, or giving him a black eye, or some other form of familiar salutation.

The finest moral sentiments are superseded at the wine-table by indelicate and impure associations, which flow out in ribaldry and bacchanal song.

A man's estimate of his own intellectual powers is often raised many degrees by a few glasses of wine. He gives his opinions, weak and puerile though they may be, with an oracular emphasis. If a doubt of their correctness be suggested, he kindles with resentment, demands satisfaction, and the matter ends, perhaps, in a duel or a murder. Has not many a war, in which thrones have been overturned, and countries desolated, had its origin in the misapprehensions and resentments caused by intoxicating drinks?

Its influence upon the mind is not that of perversion only, but of ultimate prostration. Many a vigorous and educated intellect has been reduced to imbecility or idiocy by distilled and fermented liquors.

Dr. Howe, in his Report on Idiocy to the Legislature of Massachusetts, makes the following striking statement:—

"The habits of the parents of three hundred of the idiots were learned; and one hundred and forty-five, or nearly *one-half*, are reported as known to be habitual drunkards. Such parents, it is affirmed, give a weak and lax constitution to their children, who are, consequently, deficient in vital and bodily energy, and predisposed, by their very organization, to have cravings for alcoholic stimulants; many of these children are feeble, and live irregularly. Having a lower vitality, they feel the want of some stimulation. If they pursue the course of their fathers, which they have more temptation to follow and less power to avoid than the children of the temperate, they add to their hereditary weakness, and increase the tendency to idiocy in their constitution; and this they leave to their children after them. The parents of No. 52 were drunkards, and had seven idiotic children."

Mr. James B. Richards, of Germantown, Principal of the Pennsylvania School for Imbeciles, assures me that, some years ago, he

'as acquainted with a family in Massachusetts, whose history was trikingly illustrative of the effect of intemperance in the parent .pon the offspring. The first child of these parents was healthy, ctive, and quite intelligent. Soon after its birth, the father beame intemperate. The second and third child were idiots. The ather, at length, declared to his wife that he would have no more diotic children—and signed the pledge of total abstinence. This ıe has kept till the present time, more than thirteen years. They have since had several children, all decidedly intelligent.

What a wreck of intellect is exhibited in delirium tremens. The miserable victim is pursued by imaginary enemies—serpents, wild beasts, and devils. A man, who had been a respectable merchant in one of our eastern cities, was, on one occasion, seen flying in terror from the pursuit of a shark, which he supposed was in his hat, and which he kept in close grasp under his arm. A significant instance of the *horrible grotesque*, which characterizes this disease.

Professor Huss, in July, 1852, read to the Scandinavian Scientific Society at Stockholm, a paper on the Endemic Diseases of Sweden, in an abstract from which it is observed: "The author devotes a long article to the *abuse of whiskey* as one cause of the endemic diseases of Sweden. In the fact that chlorosis has become endemic in Sweden, first during the last twenty to twenty-five years, and in the other fact that the number of recruits disapproved of as below the regulation-standard of height, has increased 2.2 per cent. in ten years, Professor Huss finds proofs of increasing debility of constitution in both sexes, of which he considers the abuse of whiskey and of coffee as the main causes—enfeebling both parents and children. To the same causes, Huss attributes a large proportion of the very common disorders of digestion."

"Dr. Huss, Professor of Medicine at Stockholm," adds my friend, Dr. S. H. Smith, who was himself, many years, a resident of that city, "is a most philosophic, practical-minded physician, standing deservedly at the head of the profession in Northern Europe, and has been guided in the composition of his paper by the opinions expressed by the provincial physicians in their annual official reports, as well as by his own extended observations."

Dr. Smith stated to me the remarkable fact, that while he was physician to a hospital in Stockholm, of three hundred beds, no less than sixty persons died there in one year of delirium tremens. It is not difficult to comprehend this, when it is understood that, for many years, more than a hundred and eighty thousand distilleries

have been in operation in Sweden, to supply a population of three and a half millions with potato whiskey.

As a prophylactic, or preventive of disease, alcohol has slender claims to public confidence. If ever useful, during the prevalence of epidemics, it has been by allaying the panic, which is one of the strongest predisposing causes of attack. At the same time, it is notorious that, during the prevalence of cholera, for example, those who are in the habitual use of alcoholic drinks, are especially liable to become victims of the disease.

As a remedy, in some forms of disease, alcohol appears to be followed by good results. In the terrible symptoms produced by the bite of a venomous serpent, the rattlesnake, for example, we have pretty good evidence that alcohol, administered so freely as to keep the patient in a state of partial intoxication for a day or two, is followed by a general diminution of the symptoms, and an ultimate cure. How one poison neutralizes or subdues another, we cannot say, under our present limited knowledge of chemico-physiology; but this effect of alcohol is no more extraordinary than the successful treatment of the bite of venomous serpents of India, and those of Martinique and St. Lucia, by the internal use of arsenic.

The waking up of a patient from deep unconsciousness, with only ten respirations in a minute, feeble pulse and cold extremities, under poisoning with opium, by the free exhibition of belladonna, as observed by Dr. Thomas Anderson, is another analogous fact, though equally difficult of explanation.

In carbuncle, phlegmonoid erysipelas, and moist gangrene, wine or spirit given rather freely, often appears to be of great efficacy in sustaining the vascular action, for a limited period, until more enduring tonics and suitable food can be borne.

In low or adynamic fevers, some distinguished physicians have regarded alcohol as a valuable stimulus in the stages of deep prostration. When the first sound of the heart becomes weak, resembling the second sound, it has been regarded as a good rule to give alcohol and other stimulants; and when, under this use, the first sound of the heart becomes distinguishable, recovery is to be looked for.

These fevers prevail in those countries where strong drink is freely used, and the masses are ill-fed, as in Ireland and Sweden; the intemperance of those countries probably creating the chief necessity for this sort of medication in their fevers.

In the treatment of tubercular phthisis, there are members of our profession who place a high value upon brandy and cod-liver oil. Cases are adduced in which all the symptoms have been greatly relieved; the patient has been improved in flesh and strength, and life apparently much prolonged, even when an entire cure has not been wrought. Two years ago, I saw a lady, twenty-six years of age, who for many months had a severe cough, pain of the chest, and copious purulent and bloody expectoration, emaciation, and night-sweats, joined with physical signs, which gave decided indication of tubercular deposits, and a considerable cavity in one lung. Brandy, to the amount of one to three ounces a day, and nearly the same amount of cod-liver oil, were taken, and persevered in for several months, and the patient kept a great deal in the open air; the flesh and strength gradually returned, and in six months, there being scarcely a trace left of the symptoms, she laid aside the brandy, but continued the oil six months longer. She now enjoys very fair health, and gives promise of living a number of years.

How far the benefit in such cases is to be ascribed to the brandy, may fairly be questioned, since physicians to large institutions in London, for the treatment of consumption, as Dr. T. Thompson and Dr. E. H. Greenhow,* had used the cod-liver oil alone, with equal, if not better success.

In dyspepsia, alcohol has been used in various forms, but apart from the danger of its producing an artificial appetite for the medicine, and causing intemperance, it may be confidently asserted that the judicious employment of a suitable diet, bathing, exercise in the open air, freedom from care, with the aid sometimes of mineral waters, are greatly to be preferred.

Fortunately, the spirituous infusions of medicinal substances are now almost superseded by the dry and fluid chemical extracts of vegetables, which may be preserved for an indefinite length of time, without the aid of alcohol, which, in the tincture, often renders them ill-suited and offensive to delicate stomachs.

What class of men is so well acquainted, both by scientific research and by observation with the mischievous effects of alcohol, as the members of the medical profession? Do not we, who claim to be a band of philanthropists, owe a high duty to our race, in regard to this thing? And has not the sober and virtuous part of the community a right to look to us for our united and untiring

* London Lancet, Am. ed., Oct. 1854, and April, 1855.

exertions in every possible way, towards confining this poison, along with its congeners, arsenic, strychnia, morphia, and prussic acid, to the shelves of the apothecary? A poison which diminishes the powers of bodily exertion, impairs health, shortens life, converts wise men into fools and maniacs, dissolves the ties and endearments of the family circle, and of social life, and draws a total and endless eclipse over the light of futurity.

APPENDIX.

Since writing the above, I have received from my esteemed friend, A. A. Hayes, whose chemical knowledge, we may confidently assert, is as great as that of any man in our country, his opinion in relation to the chemical action of alcohol, of which I give the following extract:—

"Undiluted alcohol consists of

4 equivalents of		. . . . .	carbon.
6	"	"	hydrogen.
2	"	"	oxygen.

"This substance, in its undiluted state, introduced into the stomach, causes death, and is classed by toxicologists among the narcoto-acrid poisons. In a diluted state, mixed with from one to eight times its volume of water, it represents the active principle of nearly all the alcoholic liquors. Leaving out of view the volatile aromatic oils, the sugar, the vegetable matter, &c., of the fermented and distilled liquors, we have to consider the mixed vapor of alcohol and water exhaling in the body at a temperature of 98° F. This vapor, when it comes in contact with oxygen, either as a gas or dissolved in fluids, undergoes a rapid change, resulting in the formation of aldehyde, which consists of

4 equivalents of		. . . . .	carbon.
4	"	"	hydrogen.
2	"	"	oxygen.

"This substance is the uniform product of the exposure of the mixed vapor of alcohol and water, in contact with extended and porous surfaces, to the smallest quantity of oxygen, the alcoholic temperature of 98° F.

"The evidence of its production in the system, obtained by Ducheck and others, is sustained by appropriate chemical experiments.

"As alcohol coagulates the blood and corrugates the tissues, it

does not probably pass into the circulation (and in the experiments which seem to show its existence in the blood, &c., aldehyde was probably mistaken for alcohol, which it very much resembles). Aldehyde boils at 71° F., and, therefore, exists in the system only as a vapor, capable, if restrained, of exerting a high tension. Its affinity for oxygen is very strong, and by the union of one of its equivalents of hydrogen with oxygen, water is formed, and the substance is changed to *acetous acid*. Probably the oxidation is carried only one step further in the body, and *acetic acid* is formed. The heat produced by the combination of oxygen with the hydrogen of alcoholic vapor, is not a new quantity gained from a special food for respiration, but it is heat *from one source, substituted for the heat* which *would have been obtained* from another source.

"As this view is substantiated by the experiments of careful observers, it should take the place of mere *theories*, which, in an experimental science, are of little value."

SKETCH

OF THE

CAUSTIC PULVERIZER.

By R. H. THOMAS, M. D.,

PROF. OF OBSTETRICS, UNIVERSITY OF MARYLAND.

THE Committee of the American Medical Association, to which was referred the communication of Dr. Richard H. Thomas, of Baltimore, recommend its publication in the *Transactions*.

G. EMERSON,
R. P. THOMAS,
G. W. MILTENBERGER.

JUNE 27, 1855.

SKETCH OF THE CAUSTIC PULVERIZER.

THE following simple and easy method of applying nitrate of silver to the air-passages, is recommended respectfully to the notice of the American Medical Association. It was first contrived and adopted by my brother, Dr. John Chew Thomas, of Baltimore, about six years since.

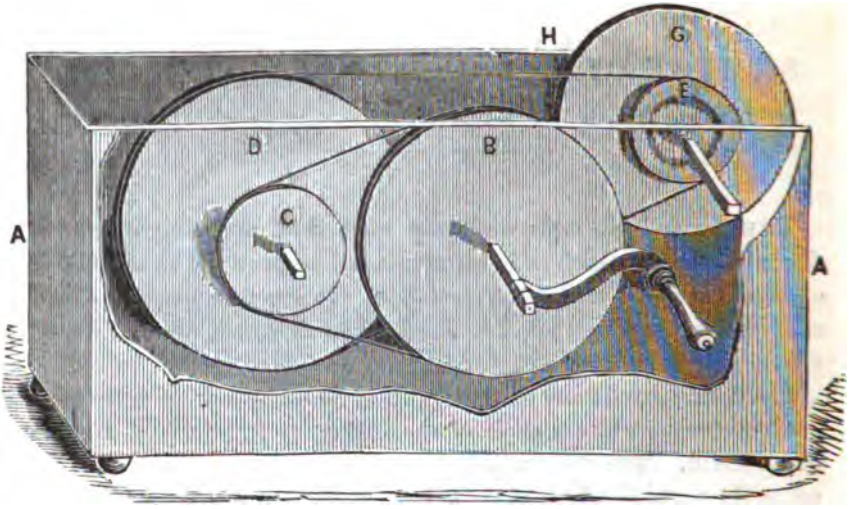
Let a fine grindstone or emery wheel be caused to revolve with great velocity, while a stick of the caustic is lightly held in contact with it. The effect will be to convert the caustic into an impalpable powder, which may be inhaled freely by the patient, who sits before the stone at a convenient distance; from three to six or eight inhalations, may be taken at a sitting, according to the effects. It is better to desist after much coughing is excited. The operation may require to be repeated every two or three days, according to the influence it exerts on the disease.

It has been found, in my experience, to be well adapted to chronic inflammation of the larynx, trachea, and bronchi, rarely causing any more than a temporary irritation. I have also used it with good effect in recent hoarseness and slight inflammation of the fauces and throat. In established acute inflammation, depletion and general treatment should precede its employment.

I might adduce a number of instances of slight but persistent affections of the larynx and trachea, which were accompanied with weakness of voice, hoarseness, inability to speak or read for any length of time, which were entirely cured by the use of this means; also of cases of chronic bronchitis, which had proved very obstinate, yielding perfectly to the steady use of the same agency. I do not claim that it can supersede the use of the sponge and caustic solution, but that in many of the slighter affections of the

throat, it may enable us to dispense with the disagreeable necessity of using it, and that it is applicable to some cases to which the former method is not.

BALTIMORE, *Maryland.*



CAUSTIC PULVERIZER.*

A, A. A mahogany box put together with screws, open at top and at the end where the stone is placed. The side towards the observer partially removed to show the interior.

B and D. Grooved wheels connected by elastic bands with the pulleys C and E.

G. Grindstone on which the caustic is lightly held, by the hand of the operator resting on the side of the box near H.

* Made by Samuel Hildebrant & Son, No. 19 North Liberty Street, Baltimore.

PRIZE ESSAY.

STATISTICS

OF

PLACENTA PRÆVIA.

"Homines nullâ re proprius ad Deos accedunt, quam hominibus salutem dando."

BY

JAMES D. TRASK, M. D.,

WHITE PLAINS, NEW YORK.

PRIZE ESSAY.

STATISTICS OF PLACENTA PRÆVIA.

THE attachment of the placenta to the mouth of the womb, is justly regarded one of the most dangerous conditions to which the pregnant female is liable. Under no circumstances are the judgment and skill of the practitioner put to a more severe test, than in the conduct of labors in which this complication exists; and in none does he more require the aid of settled principles of practice for his guide.

The earlier writers seem to have supposed the placenta in such cases to be originally adherent to the fundus uteri, and that, during gestation or labor, it becomes detached and falls down upon the mouth of the womb. The adhesion of the placenta to the inner surface of the os uteri was subsequently noted by different observers; but to Dr. Rigby is universally awarded the credit of having drawn the distinction between accidental and unavoidable hemorrhage; and of showing that, in every case of attachment of the placenta to the mouth of the uterus, hemorrhage must take place during its dilatation. Hence he maintained that delivery by turning, as soon as the condition of the os uteri will permit, affords the patient the best chance for recovery.

Over two hundred years since, Guillemeau, who had learned the art of turning from his master, Ambrose Paré, practised it indiscriminately in all cases of severe hemorrhage before delivery; and from his time it had been generally resorted to; but previous to the appearance of Dr. Rigby's essay, there had been no distinction made between cases in which it was required, and others in which less severe expedients might prove sufficient.

Rupture of the membranes, by permitting the escape of the liquor amnii, and allowing the direct pressure of the presenting part against the placenta, is, for the most part, sufficient to restrain hemorrhage in partial presentations, but usually proves insufficient when the presentation is complete. In cases to which this expedient is not applicable, or in which it fails, turning may generally be resorted to; but experience has shown, that there are instances in which even this resource is not available. Cases occur in which it cannot be performed sufficiently early to save life, in consequence of extreme rigidity of the os uteri; and in others, in which the rigidity has been overcome by forcible introduction of the hand, the result has not unfrequently been disastrous.

In 1845, Professor Simpson, of Edinburgh, published an elaborate paper* in support of a recommendation which he had previously made, to detach the placenta artificially, in cases in which it is impossible or inexpedient to deliver by turning. The idea was suggested to him by the fact that, in most cases in which the placenta had been expelled spontaneously, or removed by the attendant, prior to the birth of the child, the flow of blood had at once ceased. Dr. Simpson's paper contained a statistical statement of the mortality of placenta prævia under all circumstances of its occurrence; which was estimated at *one* in *three*. A table of cases in which the placenta had been spontaneously expelled, and intentionally or accidentally detached, exhibited a mortality, under these circumstances, of *one* in *fourteen*.

The comparison thus instituted between results after ordinary modes of delivery, and those following separation of the placenta, apparently so much in favor of the proposed plan of treatment, could not fail to excite deep interest; though a proposition so directly at variance with the generally received belief, that the patient's safety depends upon the integrity of the vascular connection of the placenta with the womb, was bold and startling.

The great success which it promised, led to the early trial of the "new practice," and, in not a few instances, it was resorted to when delivery by the ordinary means would have been equally efficacious and safe; as when the os was dilatable, and the patient in a favorable condition for turning or even for delivery by the unaided efforts of nature. In some instances, turning has immediately followed the entire detachment of the placenta, thus exposing the

* London and Edinburgh Monthly, March, 1845.

child, as may be supposed, to unnecessary risk. It is believed, also, that, in our own country, its limitation to certain exceptional cases, to which it was originally recommended as applicable, has been disregarded; and the "new practice" is spoken of by many of high general intelligence, as one that may be employed indiscriminately with the "old practice," or resorted to in any case as a matter of experiment.

In the London *Lancet*, 1847, vol. i. p. 480, Dr. Simpson thus enumerates the conditions to which this operation is applicable; "severe cases of unavoidable hemorrhage, complicated with an os uteri so insufficiently dilated and undilatable as not to allow of version being performed with perfect safety to the mother; therefore, in most primiparæ; in many cases in which placenta presentations are connected with premature labor and imperfect development of the cervix and os uteri; in labors supervening earlier than the ninth month; when the uterus is too contracted to admit of turning; when the pelvis or passages of the mother are organically contracted; when the child is dead; when it is premature and not viable; and when the mother is in such an extreme state of exhaustion as to be unable without immediate peril to life, to be submitted to the shock and dangers of turning, or forcible delivery of the infant."

In examining the merits of this suggestion, it would appear that the first question to be solved is, will *artificial* separation of the placenta from its attachments around the mouth of the womb put a stop to the hemorrhage? If it will accomplish this, it evidently must be a resource of great value in some cases, whether it be generally applicable or not. We should then inquire whether, though the hemorrhage be checked, there be any attendant circumstances, as great suffering during the operation or great temporary augmentation of the bleeding, that would tend to impair or destroy its value as a means of relief to the patient. Furthermore, if it confer safety upon the mother, is there increased risk to the child; such as to render the operation available only in exceptional cases?

It has been objected to Dr. Simpson's statistics, that they embrace incongruous and discordant materials. The table of general mortality of placenta prævia, consists of cases occurring at every age, in every condition in life, subjected to every variety of treatment, and some in which there had been no medical attendance; cases complicated with rupture of the uterus, puerperal convulsions, by contracted pelvis, and by the existence of epidemic erysipelas, &c.

The second table embraces under one head, cases of spontaneous expulsion of the placenta prior to the birth of the child; cases of its removal by ignorant attendants, and cases in which it was detached with the design of suppressing hemorrhage; which different conditions *may* materially modify the result.

The first table gives us the general mortality of the accident under all its varied conditions and complications; but when a comparison of results is intended, between different modes of practice, it is plain that it should be between groups of cases closely resembling each other in all prominent characters, and differing as little as possible, excepting in the treatment to which they are subjected. It is true that, with the materials of which statistical tables in medicine are necessarily composed, it is impossible to carry this selection of cases to the full extent; but recommendations based upon such, cannot be considered entitled to much importance in influencing practice, unless, by a careful analysis of cases, means are furnished for forming an opinion of their value, independent of *gross numerical results.* Cases that were not subjects of medical treatment should be considered in a class by themselves.

In the table given by Dr. Lee, in the London *Lancet*, vol. ii. 1847, p. 300, in 62 cases there were 15 deaths, or 1 in $4\frac{3}{15}$. Of these, one patient was seen by no medical attendant, before death; another was dying when seen, but turning was performed; three others died during an epidemic of phlebitis and metritis; in another there was extensive laceration of the cervix. The degree of hemorrhage, previous to delivery, differs so greatly as, of itself, to make a vast difference in the result. Such circumstances ought surely to be taken into consideration, in any comparison of the merits of different modes of treatment.

These remarks are made to show that tables constructed after the plan of Dr. Simpson's, can furnish only gross results, which cannot secure our confidence as a basis for deciding upon the relative value of different modes of treatment. It is true that the great question is: Will this expedient stay the loss of blood? If this can be shown, a diminution of mortality would seem necessarily to follow its adoption; yet the benefit thus obtained may be balanced by evils not at first apparent—hence our need of statistics.

Dr. Simpson maintained that the hemorrhage takes place chiefly through the medium of the placenta, and not from the exposed open veins of the uterine surface; that "in common cases of unavoidable hemorrhage, the amount of hemorrhage seems to be regu-

lated as much by the quantity of placental surface still attached, as by the quantity already separated from it, and as the separation progresses, hemorrhage diminishes, till at last we find that when the one organ is completely separated from the other, the flooding is instantly moderated, or entirely arrested."

Dr. Robert Lee opposed the new suggestion with great vehemence, chiefly upon physiological grounds, and in consequence of certain inaccuracies in Dr. Simpson's tables, which do not, however, materially affect the general results.

We have collected all the published cases of placenta prævia, which we could find in the leading medical journals, and in the pages of standard authors; to some of the authorities, whose experience is quoted by Dr. Simpson, and to others not embraced in his table, we have not had access. Several cases have been kindly communicated to us by physicians in whose practice they occurred. To these gentlemen, and to others, who have kindly assisted us in the collection of materials for this paper, we present our sincere thanks.

We have arranged the cases under three heads. Table I. consists of cases subjected to the various ordinary modes of treatment, embracing recoveries and deaths, and a few cases that died undelivered. Table II. embraces cases of spontaneous expulsion of the placenta, prior to the birth of the child. Table III. includes cases in which the placenta was artificially detached before the birth of the child. A few cases we have been obliged to quote at second hand.

We have sought, in our analysis of cases, to select from their histories every statement of fact bearing upon the condition of the patient, or upon the influence of medical treatment. These facts have been arranged under particular heads; and in the summary which follows will be found an answer to many interesting and important questions relating to the influence of certain conditions and circumstances upon the well-being of both mother and child. This summary embraces nearly all the subjects noted in the tables: the previous health and prevalence of epidemics are excepted, from the small number of cases in which these are spoken of.

Summary of Ages in all the Cases.

18 years	1 case.	34 years	5 cases.
20 "	2 cases.	35 "	7 "
21 "	3 "	36 "	2 "
22 "	1 case.	37 "	1 case.
23 "	4 cases.	38 "	8 cases.
24 "	3 "	39 "	6 "
25 "	6 "	40 "	15 "
26 "	5 "	41 "	5 "
27 "	7 "	42 "	4 "
28 "	6 "	43 "	2 "
29 "	5 "	44 "	2 "
30 "	7 "	45 "	1 case.
31 "	5 "	48 "	1 "
32 "	4 "	50 "	1 "
33 "	3 "		

Number of the Pregnancy.

Of the 1st pregnancy,	14 cases.	Of the 9th pregnancy,	12 cases.
" 2d "	32 "	" 10th "	4 "
" 3d "	17 "	" 11th "	5 "
" 4th "	18 "	" 12th "	2 "
" 5th "	16 "	" 14th "	2 "
" 6th "	13 "	" 16th "	4 "
" 7th "	8 "	" 20th "	1 case.
" 8th "	6 "	multiparæ	17 cases.

Degree of Presentation of Placenta in all the Cases.

There were 169 cases of *complete* presentation.
" " 88 " " *partial* " "

In the remaining cases, the degree to which the placenta covered the cervix is not stated.*

Of the *recoveries*, under all modes of treatment—
119 were complete presentations.
71 " partial " " or 37 per cent. partial.

* In the *London Medical Gazette*, 1845, will be found a table of thirty-four cases of placental presentation, reported by Dr. Lever, occurring in the Guy's Hospital Lying-in Charity. The facts in this table have been incorporated with the summaries of our own cases given below.

Of the *deaths*—

51 were complete presentations.

15 " partial " " or 23 per cent. partial,

showing the preponderance of complete presentations of the placenta among fatal cases.

Period of Pregnancy at which the Case terminated.

Of *recoveries*, there were at the				3d	month	. . .	1	case.
"	"	"	"	5th	"	. . .	2	cases.
"	"	"	"	6th	"	. . .	7	"
"	"	"	"	7th	"	. . .	18	"
"	"	"	"	7½	"	. . .	8	"
"	"	"	"	8th	"	. . .	47	"
"	"	"	"	8½	"	. . .	10	"
"	"	"	end of	8th	"	. . .	6	"
"	"	"	at the	9th	"	. . .	25	"
"	"	"	at full time			. . .	37	"
					Total		161	"
Of *deaths*, there were at the				4th	month	. . .	1	case.
"	"	"	"	7th	"	. . .	10	cases.
"	"	"	"	7½	"	. . .	4	"
"	"	"	"	8th	"	. . .	12	"
"	"	"	"	8½	"	. . .	9	"
"	"	"	end of	8th	"	. . .	2	"
"	"	"	"	9th	"	. . .	7	"
"	"	"	full time			. . .	9	"
					Total		54	"

We may remark, in passing, that this gives a mortality of about one in four, of cases in which the period of pregnancy happens to be noted, which does not differ much from Dr. Simpson's estimate (1 in $3\frac{6}{10}$) of the general mortality of the accident. The tendency to premature delivery in cases of placental presentation, is alluded to by many obstetric writers, and there is a decided preponderance of such among the above cases.

Is there a larger proportion of fatal cases among patients delivered prematurely than among those who accomplish the full period?

Omitting the cases at the third and fourth months as being mis-

carriages, of 137 cases occurring *before the ninth month*, 38, or 28 per cent., were *lost;* while of the 78, at *full time*, or the ninth month, 16, or 20 per cent., were *lost*. These results, so far as they go, indicate the propriety of endeavoring to carry every case to maturity, if it be possible, as a means of increased safety to the mother.

But while the results afforded by this table, as a whole, are doubtless correct, possibly, among the cases occurring in the earlier months, there is not a fair representation of the mortality at the respective periods; for example, seven recoveries at the sixth month, and no loss. But, "until the seventh month of pregnancy, the bloodvessels of the uterus have not attained a sufficient size to pour out blood in so great a quantity as suddenly to destroy life, though the discharge may be very profuse and produce alarming symptoms." (Lee's *Lectures*, p. 362.) "We may remark, as a general rule, and as a consolatory circumstance, that nature, if not interrupted, or when given the best chance, will almost always effect the expulsion of the ovum, previously to, or soon after, the sixth month, without the manual interference of the accoucheur." (Dr. Dewees, *Phil. Med. and Phys. Journ.*, vol. v. p. 292.)

Of the eleven cases in the table, *before* the *seventh month*, there was but one death, and that not from hemorrhage, but from tetanus, several days after delivery.

Again: from the seventh *to* the ninth month, not including the latter, because in some reports the ninth month is apparently used to denote the full time—there are eighty-nine recoveries and thirty-seven deaths, or *one in three and a half;* while at the full time, as we have seen, there were sixty-two recoveries, and only sixteen lost, or less than *one in five*.

From this it appears, that previous to the seventh month, the risk is least, and that the period of greatest danger is between the seventh month and the completion of the term of pregnancy.

When the case has proceeded to the end of the ninth month, though there may be great reduction of the strength from previous hemorrhages, the patient enjoys the immense advantage in almost every case of the natural contractions of the womb, to aid in the expulsion of its contents, and to secure its contraction after the child is delivered. It is true that, in the cases in which the child is expelled, and in many in which it is delivered by art, before the full time, expulsive pains are present to a greater or less degree; but, at the full period, they are more constant, as will appear by referring to the following cases, and comparing the two groups.

In Cases 5, 13, 38, 69, 70, 84, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 103, 105, 110, 111, 121, 148, 149, 162, 165, 227, 230, 236, 238, 241, 267, 276, 281, 284, 295, 300, 311, 315, 317, 321, 323, 327, 330, 332, total 43; labor was *premature*, and more or less pain is alluded to as present; but in very many of these it is evident that there were no active contractions.

In Cases 8, 20, 34, 37, 41, 101, 159, 174, 192, 269, 280, total 11, labor was *premature*, and it is distinctly stated that there were no pains. In many others in which no direct mention is made of the circumstance, it is quite apparent that there were none.

In Cases 2, 6, 9, 64, 65, 66, 71, 79, 85, 86, 90, 109, 124, 166, 183, 190, 193, 219, 222, 229, 241, 260, 283, 316, 329, total 25, labor was at *full time*, and pains were present.

In Cases 153, 157, 193 at *full time*, it is stated that there were no pains, and in Cases 167, 172, there were little or none.

This question has an important practical bearing; for if it be desirable to carry the case to maturity, we must avoid any expedient for the arrest of the hemorrhage, as the tampon, which is calculated to induce uterine contractions.

Presentation of the Child.

Head, including complications with descent of funis and of hand . . .	113 cases.	Funis and leg . .	1 case.
Shoulder	4 "	Umbilicus . . .	2 cases.
Arm	14 "	Breech	8 "
Arm and head, funis and leg, the foot of one, and head of the other.	3 "	Foot	13 "
		Twins	1 "

Of the remainder, the presentation is not stated; probably the most, if not all, were of the head, as is in many instances rendered probable by the context. The frequency of unnatural presentations of the child in placenta prævia has been often remarked, and is probably due to the large proportion of premature births.

TABLE I.—Re

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION AT TIME OF DEATH
1	Dr. Dewees, in Phil. Med. and Phys. Journal, v. 286.				Complete	Rigid and high up; plugged; in 6 hours dilated sufficiently to allow of turning.		When found, w feeble, and w alarmed; had a pains came on 6 after plugging.
2	Dr. Collins, p. 54, Case No. 4.	23	7th child	Full time	A portion was found at the os	Admitted of delivery.	Head	"Looked pale and ly."
3	Ibid., Case 77.	32	9th pregnancy	Full time	A large portion found at the os	Os little dilated but relaxed and thin.	Head	Little or no tion.
4	Ibid., Case 72.	28	5th pregnancy	Full time	Partial		Head	
5	Ibid., Case 17.	33	2d child	8th month	Partial	Os size of a crown piece; very relaxed; well dilated at delivery.	Head	
6	Ibid., Case 50.	30	6th child	Full time	Partial	Size of a crown and rigid.	Head	Much reduced.
7	Ibid., Case 119.	34	7th child	Full time	Partial		Head	
8	Ibid., Case 33.	38	5th pregnancy	7th month	Partial		Foot	
9	Ibid., Case 83.	28	2d pregnancy	Full time	Partial		Breech	
10	Dr. Clark, Dub. Hosp. (See Dr. Collins, p. 54, note.)			6th month				
11	Ibid.			8th mo.				
12	Ibid.			Had a defective pelvis				
13	Dr. Robert Lee's Lectures, No. 3, Clinical Med., p. 262.			7½ months	Found hanging out of the os			Apprehended she w die undelivered.
14	Ibid., No. 5, Clin. Med., p. 264.				Complete	Soft and dilated.		Exhaustion.
15	Ibid., No. 6, Clin. Med., p. 265.			8th month	Placenta attached to lower part of the uterus	Os widely dilated, and placenta in part hanging through it.		Usual effects of los blood.
16	Ibid., No. 8, Clin. Med., p. 267.			7th month	Complete	Os very rigid; little dilated.		Great exhaustion; p imperceptible; ext ties cold.

urning, &c.

? AND DURATION HEMORRHAGE RE DELIVERY.	MODE OF DELIVERY.	DISPOSITION OF PLACENTA.	RECOVERY.	FATE OF CHILD.	REMARKS.
profuse discharge d on the doctor's ; though near at more than half a was lost; plug; morrhage for 6 then delivered.	Turning.		Recovered	Living	
reeks before, had emorrhage, and a erable flow 3 days admission; had a and an immense f blood.	Turned with little difficulty; no more loss of blood; rallied slowly.		Discharged in 17 days	Dead	
ous discharge of , little or no pain.	Version without difficulty.	Permitted to remain an hour in the vagina, and then expelled.	Left well on the 16th day	Living	Half an hour after expulsion of placenta, profuse bleeding came on for an hour and a half, which much reduced her.
l attacks of hemor- previously, but an alarming ex- returning occa- lly.	No interference required.		Recovered	Living	
l profuse attacks e admission; re- d at intervals, and ased by pains for 2½ s.	Forceps; 2½ hours after admission; without much difficulty.		Left well on the 15th day	Living	
ent discharges of l for 8 days; dis- ge increased by s; 10 hours after ad- ion, pains came on hemorrhage set in.	Attempt to pass the hand, on return of hemorrhage, which failed; head opened; operation difficult.		Recovered	Dead	Presenting part of the placenta hard, whitish, with little vascularity.
suffered much from orrhage before ad- sion.	Child being dead, head opened.		Recovered	Dead	
days before, had siderable discharge lood; trifling return re admission; no a.	Foot brought down without further loss of blood.	Found almost entirely separated, and in the vagina, before delivery.	Recovered	Putrid	One-half of placenta much altered, containing large and whitish masses like fat, and lymph highly organized.
been in labor several rs, and suffered se- e hemorrhage; he- rrhage frequent, but such as to excite easiness.	Breech at once brought down, by a finger hooked into the groin, and child soon expelled.		Recovered	Living	
	Had a forced delivery.		Recovered		
	Had a forced delivery.		Recovered		
	Craniotomy.		Recovered	Dead	
morrhage 36 hours be- re aid was called; a olent flooding for se- eral hours.	Turning proposed, but refused; fœtus and placenta expelled together.		Recovered		Great exhaustion.
eat hemorrhage.	Hand passed by the placenta; membranes ruptured; child turned.		Recovered	Dead	
rge quantity lost.	Turning easy.		Recovered	Dead	
ight oozing for 3 weeks, hen profuse discharge.	Repeated attempts to turn; at last, effected with difficulty, and hemorrhage arrested.		Recovered		Exhaustion; rigors; death threatened.

TABLE I.—*Recovered*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDI[illegible] TIME OF DEAT[illegible]
17	Dr. Robert Lee's Lectures, Case No. 9, Clinical Med., p. 266.			8th month	Found hanging out of the os	Rigidity of os, and distortion of pelvis, forbid turning.	Head	
19	Ibid., No. 11, Clin. Med., p. 270.			9th month	Partial	Rigid; size of a crown.	Head	Syncope.
20	Ibid., No. 17, Clin. Med., p. 273.			8th month	Hanging out of the os	Soft and dilatable.		Pulse rapid and [illegible] no pains.
21	Ibid., No. 18, Clin. Med., p. 278.			6th month	A portion of the detached placenta hanging from the os	Soft and widely dilated.		Large loss.
22	Ibid., No. 19, Clin. Med., p. 279.			9th month	Complete	Os slightly dilatable.		Extreme debility.
23	Ibid., No. 20, Clin. Med., p. 280.			9th month	Partial	Os slightly dilated at first; in 24 hours, fully dilated.	Head	No constitutional sy[illegible] toms.
24	Ibid., No. 21, Clin. Med., p. 275.				Complete	End of third day, largely dilated.		No labor pains.
25	Ibid., No. 25, Clin. Med., p. 284.	40		7th month	Adhered to neck; complete	Rigid.		Syncope.
26	Ibid., No. 27, Clin. Med., p. 286.			7th month	Partial			For days previous, [illegible] perienced sens[illegible] weight and uneasin[illegible]
27	Ibid., No. 28, Clin. Med., p. 287.			8th month	Complete	Thick and little dilated; hand could not be passed in.		Syncope.
28	Ibid., No. 30, Clin. Med., p. 291.			8th month	Complete	Os rigid; size of a half-crown.		
30	Ibid., No. 32, Clin. Med., p. 293.			8th month	Complete; adhering to the os	Thick and dilatable; finger with difficulty introduced. [With ease; see Clin. Med.]		Faint; great loss.
31	Ibid., No. 33, Clin. Med., p. 294.			End of 7th month	Complete	Size of a half-crown; not rigid.	Breech	Strength little impaire[illegible] great hemorrhage.
32	Ibid., No. 34, Clin. Med., p. 288.			6th month	Partial			
33	Ibid., No. 36, Clin. Med., p. 296.			8th month	Complete	Partially dilated; rigid.		
34	Dr. Lee's Case 37, in London Lancet, ii. 482, 1845.			8th month	Complete	Not much dilated; soft and yielding.		
35	Ibid., Case 38.			7th month	Complete	Os was of size of a crown piece.		
36	Ibid., Case 39.			8th month	Partial			

ing, &c.—Continued.

...NT AND DURATION ...F HEMORRHAGE ...FORE DELIVERY.	MODE OF DELIVERY.	DISPOSITION OF PLACENTA.	RECOVERY.	FATE OF CHILD.	REMARKS.
...se hemorrhage; he...rhage continued.	Craniotomy; delivered after 4 hours with great difficulty.		Recovered	Dead	
...t flow during 14 ...s, ending with im...se discharge.	Membranes ruptured; spontaneous expulsion.		Recovered	Dead	Hemorrhage arrested by rupture of the membranes.
...a fit of coughing, ...re hemorrhage.	Turning easy.	Allowed to remain some time to act as a plug.	Recovered	Living	
...rring at intervals ...ing 4 weeks; ergot ...en; flooding increas...by it.	Turning easy.		Recovered	Living	
...orrhage at intervals ...several days.	Membranes ruptured, and a foot brought down; delivery easy.		Recovered after severe phlebitis		No hemorrhage followed delivery.
...orrhage slight.	Membranes ruptured, and delivery spontaneous.		Recovered	Living	
...orrhage lasting for 3 ...ys; great discharge of ...ood at last took place.	Turning easy.		Recovered	Dead	
...orrhage profuse.	Two fingers introduced into os, and foot easily brought down before the membranes were ruptured; turning easy.		Recovered	Dead	Hemorrhage arrested by delivery.
...fuse hemorrhage.	Membranes ruptured, inducing strong labor pains; child expelled in 1½ hours.		Recovered	Dead	Hemorrhage arrested by rupture of membranes.
...morrhage during 7th ...onth; repeated twice, ...t short intervals, in 8th ...onth; immense discharge at last, inducing ...yncope.	Fore and middle finger passed between placenta and uterus; a foot brought down with great difficulty; head delivered by great exertion.		Recovered		
...ontaneous in 8th mo.; ...everal attacks; not very ...rofuse.	Turned without difficulty; hemorrhage arrested.		Recovered		
...rofuse flooding.	Turning easy.		Recovered	Living	
	Foot brought down without difficulty.		Recovered	Dead	Nates firmly grasped by cervix.
	Membranes ruptured, and a dead child expelled.		Recovered	Dead	Hemorrhage arrested by delivery.
Hemorrhage in 7th mo.; ceased; renewed in 6 weeks with syncope.	Turning; hemorrhage ceased; delivery easy; great faintness.	Placenta could not be separated; hence, fingers forced through it.	Recovered		
Discharged at intervals for two or three weeks.	Hand passed without difficulty; turning and delivery.	Placenta soon followed.	Recovered quickly	Dead	Hemorrhage ceased after expulsion of child and placenta.
Suffering from profuse hemorrhage for 3 weeks.	Attempted to pass the hand, but failed; with 2 fingers passed under the placenta, ruptured the membranes, seized a foot, and delivered.	Expelled soon after.	Recovered	Living	Hemorrhage entirely ceased after expulsion of child and placenta.
"With profuse hemorrhage."	Membranes were ruptured; ergot given; natural birth.	Expelled.	Recovered		

TABLE I.—*Recoveries of*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL COMMENTS AT TIME OF DELIVERY.
37	Dr. Lee's Case 40, in London Lancet, ii. 482, 1845.			8th month	Partial	Rigid; undilated.		Danger very imminent
38	Ibid., Case 41.			8th month	Partial	Size of a crown piece; rigid and thick.		Pains were diminishing and hemorrhage increasing, to an alarming extent.
39	Ibid., Case 42.	41		8th month	Partial	Partially dilated, and not dilatable.		Immediate delivery indicated.
40	Ibid., Case 43.			8th month	Complete	Little dilated and very rigid; plugged after 7 hours; a half-crown piece; thick, and rigid.		Profuse hemorrhage, and great fainting.
41	Ibid., Case 44.		3d pregnancy; distorted pelvis	5th month	Uncertain			
42	Dr. Lee's Case 44, in Lancet, ii. 300, 1847, which should be Case 45. See, also, London Med. Gazette, 1845, p. 1019.		3d pregnancy	9th month	Complete	Little dilated; apparently relaxed.		Strength little impaired until when seen; then almost pulseless; part of the time insensible; face indicated great loss of blood.
43	Ibid., Case 46; marked 45.			9th month	Complete	Os soft and yielding; size of a dollar.		
44	Ibid., Case 47; marked 46.				Partial			
45	Ibid., Case 48; marked 47.				Partial			
46	Ibid., Case 49; marked 48.				Partial			
47	Ibid., Case 50.				Complete			
48	Ibid., Case 51.				Complete			
49	Ibid., Case 52.				Complete			
50	Ibid., Case 53.				Complete			
51	Ibid., Case 55.				Complete			
52	Ibid., Case 56.				Complete			
53	Ibid., Case 57.				Complete			
54	Ibid., Case 58.				Complete			
55	Ibid., Case 59.				Partial			
56	Ibid., Case 60.				Complete			
57	Ibid., Case 61.				Complete			
58	Ibid., Case 62.			7th month	Complete	Partially dilated and rigid.		Discharge very profuse; danger imminent.
59	Ibid., Case 63; marked 62.			Far advanced	Partial	Os size of a crown piece.	Head	Hemorrhage profuse.
60	Rigby's Essay, Case 6.					Os partially dilated, and resistance of uterus trifling.	Head	Faintness extreme, and every symptom of most immediate danger.
61	Ibid., Case 13.				Complete	Os quite shut.	Head	Flooding came on with labor pains, which had ceased; appearance most threatening.

ssing, &c.—Continued.

OUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSITION OF PLACENTA.	RECOVERY.	FATE OF CHILD.	REMARKS.
use flooding for 2 eks; had lost a great ount.	Attempted turning; had failed; ruptured the membranes, but no pains; head perforated, and crotchet used.	Soon followed the child.	Recovered	Lost	Hemorrhage ceased entirely after expulsion of child and placenta.
norrhage for 3 weeks.	Turning was impracticable, and funis did not pulsate; perforated with much difficulty.	"Followed the child."	Recovery rapid and complete	Lost	Hemorrhage ceased entirely after expulsion of child and placenta.
lerate discharge for veral days; an immense gush suddenly curred.	Membranes ruptured, but bleeding continued; head was opened and extracted with difficulty.	"Soon expelled."	Recovered	Lost	Hemorrhage ceased entirely after expulsion of child and placenta.
norrhage, but not arming, for 3 weeks, d then suddenly very ofuse; plugged; profuse in 7 hours.	Attempted turning; failed; foot grasped by fore and middle fingers, and delivered.	"Soon followed."	Recovered in 6 hours	Lost	Hemorrhage ceased entirely after expulsion of child and placenta.
ofuse hemorrhage on e day after the opeion, but no signs of bor.	Premature delivery for narrow pelvis; placenta was pierced by stilette; in 3 days, spontaneous expulsion.		Recovered		
tacked three weeks beore, and lost much at fferent times; danger ery imminent.	Could not easily dilate; head was pushed aside by 2 fingers, on rupture of membranes, and a foot seized; strong traction required to overcome rigidity of os.	After a little time, placenta removed.	Rallied from the dangerous exhaustion and recovered		
rst attacked in 8th onth, and repeated several times in a slight egree; great gush 5 ays before delivery nd on day of delivery.	Passed hand between womb and placenta; ruptured membranes, and turned.	Being wholly detached, was extracted, and hemorrhage ceased.	Rallied after some hours of most alarming exhaustion	Dead	Immense hemorrhage followed birth of child.
	Membranes ruptured; spontaneous expulsion.		Recovered		
	Membranes ruptured; spontaneous expulsion.		Recovered		
	Membranes ruptured; spontaneous expulsion.		Recovered		
	Turning.		Recovered		
	Turning.		Recovered		
	Turning with 2 fingers.		Recovered		
	Turning with 2 fingers.		Recovered		
	Turning with 2 fingers.		Recovered		
	Placenta and fœtus expelled spontaneously.		Recovered		
	Turning.		Recovered		
	Turning with 2 fingers.		Recovered		
	Ruptured membranes; spontaneous expulsion.		Recovered		
	Placenta and child expelled.		Recovered		
	Craniotomy.		Recovered		
ix weeks before, hemorrhage came on, and had profuse 4 times.	Perforated the placenta with 2 fingers; head pushed away, and leg seized by the fingers; extraction difficult.	"A good deal of time and force required to draw the hand through the os."	Recovered		Placenta detached and withdrawn; in half an hour hemorrhage ceased.
Suddenly seized.	Attempt to turn failed; craniotomy.		Recovered	Dead	
Had been flooding a considerable time, and lost a large amount of blood.	Delivered at once by turning, after separating the placenta on one side.		Recovered after a time	Dead	
Had been flooding very much for several hours; discharge still profuse.	Dilated the os, first by one finger, till hand passed; separated the placenta on one side, after failing to perforate it; turned and delivered with ease.		Eventually recovered	Not stated	Great exhaustion followed delivery.

TABLE I.—*Recoveries d*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION AT TIME OF DELIVERY.
62	Rigby's Essay, Case 23.		Sickly woman	Last month	But a small portion		Head	
63	Ibid., Case 24.			Middle of 8th month	Complete	"Uterus not completely distended," but dilatable.	Head	Was faint, &c., but reduced so much induce him to turn. not the placenta sented.
64	Ibid., Case 26.		Very tender and delicate constitution; bad health; 8th labor	Full time	Complete	When first seen, was the size of a shilling, but not dilatable; became dilatable.	Head	Bleeding had become pid and considerable.
65	Ibid., Case 31.			Full time	"At the os"		Presumed head	Hemorrhage had been many hours' duration "and much blood lost
66	Ibid., Case 35.		Borne many children	Full time	Complete	Not much opened, but dilatable.	Presumed head	Extremely faint.
67	Ibid., Case 37.		Had many children and always full of complaints and had bad labors	Last month	Partial	At first, it did not admit of turning.	Breech	
68	Ibid., Case 39.		2d pregnancy	Near full time	Complete	Os at first very little opened, and rigid; 2 days after, it permitted turning; os dilatable.	Presumed head	
69	Ibid., Case 43.			30 weeks gone		At first, os rigid, and resisted the fingers.	Head	After attempt at delivery pains and discharge continued; was more more faint; in an hour and a half after arrival a profuse hemorrhage and most alarming syncope.
70	Ibid., Case 45.			20 weeks	Complete	Uterus too small to admit the hand.		Bleeding continued with every pain.
71	Ibid., Case 46.		3d child	Full time	Complete	Dilatable; admitted four fingers.	Presumed head	
72	Ibid., Case 48.			Last month	Complete	Soft and yielding.	Presumed head	
73	Ibid., Case 49.		Healthy	Full time	"Placenta presenting"	Admitting the hand.	Presumed head	Had not suffered an excessive loss.
74	Ibid., Case 50.				"Placenta presenting"	Soft and yielding.	Breech	Delivered before any great quantity of blood was lost.
75	Ibid., Case 54.		3d labor	Near full time	Apparently complete	Lax.	Apparently head	Lost a great quantity, and extremely faint.
76	Ibid., Case 56.				Apparently complete		Apparently head	
77	Ibid., Case 57.				Attached to os		Apparently head	

rning, &c.—Continued.

MOUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSITION OF PLACENTA.	RECOVERY.	FATE OF CHILD.	REMARKS.
ne hemorrhage on st, 25th, 26th; ruptur- the membranes; eeding almost ceased; 27th, came on severe; 2 hours pains came ; head descended; de- vered in 5 hours.			Recovered though much reduced		Placenta, very thin and irregular, attached to one side of the uterus; bleeding seemed chiefly from a separated portion high up.
d been flooding several ours, and for the last alf hour it considera- ly increased.	Delivered by turning, without much difficulty.		Extremely languid for some time, but recovered	Dead	
ght bleeding during 8 ours; carefully watch- d; increased suddenly s pains came on.	Delivered with ease.		Recovered as well as usual	Living	He thinks, if she had not been carefully watched, hemorrhage might at last have come on when no one was near, as in Cases 14 and 15.
ains came on unattend- d by bleeding, and it in- reased with the pains.	Turning.		Saved	Not stated	
or several days, slight ains, and an increasing ischarge of blood; just efore I was sent for, it was very rapid, and a arge amount lost.	Turned with ease.		Recovered though extremely faint and languid	Dead	
uring 3 or 4 weeks, oc- asional slight bleeding; larming bleeding and pains came on; labor ame on 10 days after.	Delivered by the feet.		Recovered	Living	
n 10th, slight pains and slight but increasing dis- charge; true labor came on 2 days after, and he- morrhage considerable.	Placenta pierced by hand and child turned.		Recovered	Not stated	
had hemorrhage for more than a month, increas- ing of late; slight pains at intervals, causing a fresh flow. (Had a fall at commencement of hemorrhage.)	Delivery at once attempt- ed, but fingers could not pass; at the instant of complete syncope, hand passed in, and turning effected.	Came away in a few minutes, and hemorrhage soon stopped.	Recovered	Dead	
Discharge for some hours, and slight pains.	Fœtus and placenta ex- pelled in an hour.		Recovered		
Some bleeding at begin- ning of labor; increasing in same degree as pains; much blood had been lost.	Delivered by turning with ease.		Recovered as usual	Dead	
Had several attacks for some days; now more profuse.	Delivered at once easily by turning.		Recovered	Not stated	Discharge immedi- ately stopped.
	At once, by turning with ease.		Recovered as usual	Living	
Hemorrhage came on in labor.	By feet; easily.	Came away soon.	Recovered happily	Not stated	
For some hours, had been flooding excessively.	Delivered at once by turning.		Recover- ed; very weak for weeks	Not stated	
Considerable bleeding came on with labor.	Delivered at once by feet.		Recovered	Not stated	
Been in labor, and flood- ing, the greater part of the day.	Delivered at once by the feet.		Recovered speedily	Not stated	

TABLE I.—*Recoveries after*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION AT TIME OF DELIVERY.
78	Rigby's Essay, Case 61.			8th month	Complete	Little dilated at first.	Apparently head	
79	Ibid., Case 62.			Full time	"At the mouth"	Partially dilatable.	Apparently head	
80	Ibid., Case 66.		Small, delicate, sickly		"Presenting"			Much reduced.
81	Ibid., Case 68.		Had several	Near full time	Complete	Considerably open, and dilatable.		
82	Ibid., Case 69.				Fixed to os			
83	Ibid., Case 75.		Had borne several; small, sickly, emaciated, and enfeebled by disease	7½ mos.	"Presenting"	Os little open.	Apparently head	Had a very great loss, and was in a deplorable state.
84	Ibid., Case 78.		Bad health; 2d pregnancy	5th month	"At the mouth;" complete		Arm and head	
85	Ibid., Case 83.		9th child	Full time	Complete	Considerably dilated.	Presumed head	In evening, very languid.
86	Ibid., Case 87.		4th child	Full time	"Fixed to os"	"Very loose."	Presumed head	Very languid, and evidently in much danger from what she had lost.
87	Ibid., Case 88.				"At the os"		Presumed head	
88	Ibid., Case 96.			7th month	Adhering to os			Had lost considerable blood.
89	Ibid., Case 97.		Delicate; tender constitution, multipara	Beginning of 9th month	"Attached"	"Little open," but dilatable.		
90	Ibid., Case 101.		Very active; borne 9 or 10	Full time	Complete; "filled up"	Considerably dilated.	Presumed head	She sank instantly, and a most formidable fainting induced.
91	Ibid., Case 105.			8th month	Complete	Considerably dilated.	Presumed head	Very faint, and flooding at every pain.
92	Madame Lachapelle, ii. 427.	27	Little robust; sanguine temperament; 1st pregnancy	Middle of 7th month	Placenta filled the os	On admission, little dilated.	Head	Some pain on admission, which increased.
93	Ibid., p. 431.	28	5th pregnancy	7th month	"Tout voisin de l'orifice"	Dilated.	Feet	
94	Ibid.	38	Sanguine temperament; 2d pregnancy	8th month	Felt the edge of the placenta	Dilatable, but little open.	Feet	

Turning, &c.—Continued.

AMOUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSITION OF PLACENTA.	RECOVERY.	FATE OF CHILD.	REMARKS.
Suddenly seized with profuse flow.	Waited awhile, and turned with more than usual difficulty.		Recovered	Not stated	
Labor began with considerable flooding, and not seen for some hours.	Delivered by turning.		Recovered	Not stated	
Two hours before, pains and some bleeding came on; lost a great deal of blood in a very little while.	"With very little trouble."	Withdrawn.	Recovered	Not stated	
Very much reduced, and flooding for several hours.	With very little trouble.		Recovered	Not stated	
Separation on approach of labor; lost a good deal of blood before uterus would allow of delivery.	"Forcible delivery."		Recovered	Not stated	
Frequent floodings from 3d month to middle of 7th, and then suddenly became very profuse.	Forced in fingers one by one, and almost the hand; womb small, and delivered by the feet.	Withdrawn, and appeared to have been long detached.	Recovered after a very long time	Not stated	Little hemorrhage followed.
Seized with pain and considerable bleeding.	Perforated the placenta, and turning attempted, but failed; expelled in 4 hours by true pains.		Eventually recovered		Bleeding at once ceased.
Labor came on with flooding in forenoon; at noon, very copious and pains abated.	Turned with very little difficulty.		Recovered	Living	
Labor began with very formidable discharge.	Delivered at once by turning, with ease.		Eventually recovered	Not stated	
Found her flooding considerably.	Delivered at once by turning, with ease.		Recovered	Living	
Considerable hemorrhage took place.	Delivered at once by turning, with ease.		Recovered	Living	
Some hemorrhage in middle of 7th month; returned and became alarming at this time.	Delivered at once by turning, with ease.		Recovered; nearly as well as ever	Living	
Some hemorrhage month before; it came on at full time, not severely, in evening; at 5 A. M., sudden pain and excessive gush.	Delivered at once by turning, with ease.		Rallied after several hours and recovered	Not stated	
Slight discharge and pain day before; discharge increasing through the night.	Delivered at once by turning, with ease.		Recovered perfectly	Dead	
Repeated losses of blood at 7th month; on admission, tampon; twice reapplied.	Delivered after a while, when os judged to be sufficiently dilated, with ease.	Expelled spontaneously.	Recovered	Dead	
Slight pains and bleeding came on after a fall; membranes broke.	Feet at once drawn down.	Escaped readily.	Recovered	Dead	
Experienced suddenly, in 7th month, a hemorrhage, which was arrested; renewed in end of 8th mo., and, on admission, lost it in great abundance.	The membranes were ruptured; bleeding ceased, and child expelled in 2 hours.	Extracted readily.	Recovered	Dead	

TABLE I.—*Recoveries after*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION AT TIME OF DELIVERY.
78	Rigby's Essay, Case 61.			8th month	Complete	Little dilated at first.	Apparently head	
79	Ibid., Case 62.			Full time	"At the mouth"	Partially dilatable.	Apparently head	
80	Ibid., Case 66.		Small, delicate, sickly		"Presenting"			Much reduced.
81	Ibid., Case 68.		Had several	Near full time	Complete	Considerably open, and dilatable.		
82	Ibid., Case 69.				Fixed to os			
83	Ibid., Case 75.		Had borne several; small, sickly, emaciated, and enfeebled by disease	7½ mos.	"Presenting"	Os little open.	Apparently head	Had a very great loss, and was in a deplorable state.
84	Ibid., Case 78.		Bad health; 2d pregnancy	5th month	"At the mouth;" complete		Arm and head	
85	Ibid., Case 83.		9th child	Full time	Complete	Considerably dilated.	Presumed head	In evening, very languid.
86	Ibid., Case 87.		4th child	Full time	"Fixed to os"	"Very loose."	Presumed head	Very languid, and evidently in much danger from what she had lost.
87	Ibid., Case 88.				"At the os"		Presumed head	
88	Ibid., Case 96.			7th month	Adhering to os			Had lost considerable blood.
89	Ibid., Case 97.		Delicate; tender constitution, multipara	Beginning of 9th month	"Attached"	"Little open," but dilatable.		
90	Ibid., Case 101.		Very active; borne 9 or 10	Full time	Complete; "filled up"	Considerably dilated.	Presumed head	She sank instantly, and a most formidable fainting induced.
91	Ibid., Case 105.			8th month	Complete	Considerably dilated.	Presumed head	Very faint, and flooding at every pain.
92	Madame Lachapelle, ii. 427.	27	Little robust; sanguine temperament; 1st pregnancy	Middle of 7th month	Placenta filled the os	On admission, little dilated.	Head	Some pain on admission, which increased.
93	Ibid., p. 431.	28	5th pregnancy	7th month	"Tout voisin de l'orifice"	Dilated.	Feet	
94	Ibid.	38	Sanguine temperament; 2d pregnancy	8th month	Felt the edge of the placenta	Dilatable, but little open.	Feet	

Turning, &c.—Continued.

AMOUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSITION OF PLACENTA.	RECOVERY.	FATE OF CHILD.	REMARKS.
Suddenly seized with profuse flow.	Waited awhile, and turned with more than usual difficulty.		Recovered	Not stated	
Labor began with considerable flooding, and not seen for some hours.	Delivered by turning.		Recovered	Not stated	
Two hours before, pains and some bleeding came on; lost a great deal of blood in a very little while.	"With very little trouble."	Withdrawn.	Recovered	Not stated	
Very much reduced, and flooding for several hours.	With very little trouble.		Recovered	Not stated	
Separation on approach of labor; lost a good deal of blood before uterus would allow of delivery.	"Forcible delivery."		Recovered	Not stated	
Frequent floodings from 3d month to middle of 7th, and then suddenly became very profuse.	Forced in fingers one by one, and almost the hand; womb small, and delivered by the feet.	Withdrawn, and appeared to have been long detached.	Recovered after a very long time	Not stated	Little hemorrhage followed.
Seized with pain and considerable bleeding.	Perforated the placenta, and turning attempted, but failed; expelled in 4 hours by true pains.		Eventually recovered		Bleeding at once ceased.
Labor came on with flooding in forenoon; at noon, very copious and pains abated.	Turned with very little difficulty.		Recovered	Living	
Labor began with very formidable discharge.	Delivered at once by turning, with ease.		Eventually recovered	Not stated	
Found her flooding considerably.	Delivered at once by turning, with ease.		Recovered	Living	
Considerable hemorrhage took place.	Delivered at once by turning, with ease.		Recovered	Living	
Some hemorrhage in middle of 7th month; returned and became alarming at this time.	Delivered at once by turning, with ease.		Recovered; nearly as well as ever	Living	
Some hemorrhage month before; it came on at full time, not severely, in evening; at 5 A. M., sudden pain and excessive gush.	Delivered at once by turning, with ease.		Rallied after several hours and recovered	Not stated	
Slight discharge and pain day before; discharge increasing through the night.	Delivered at once by turning, with ease.		Recovered perfectly	Dead	
Repeated losses of blood at 7th month; on admission, tampon; twice reapplied.	Delivered after a while, when os judged to be sufficiently dilated, with ease.	Expelled spontaneously.	Recovered	Dead	
Slight pains and bleeding came on after a fall; membranes broke.	Feet at once drawn down.	Escaped readily.	Recovered	Dead	
Experienced suddenly, in 7th month, a hemorrhage, which was arrested; renewed in end of 8th mo., and, on admission, lost it in great abundance.	The membranes were ruptured; bleeding ceased, and child expelled in 2 hours.	Extracted readily.	Recovered	Dead	

TABLE I.—*Recoveries after*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION AT TIME OF DELIVERY.
95	Mad. Lachapelle, p. 432.	21	1st pregnancy	Near 8th month	Partial	Partially open, and dilatable.	Head	
96	Ibid., p. 441.			8½ mos.	Complete	Permitted delivery.	Presumed head	The tampon increased the pains and the hemorrhage, which had now come on; she grew feeble and it was withdrawn.
97	Ibid., p. 443.	29	1st pregnancy	End of 7th month	Partial	Little open, but dilatable.	Head	
98	Ibid., p. 451.	43	Large, spare, but of good health; 3d or 4th pregnancy	9th month	Apparently complete	Dilated.	Head	Extremely feeble; almost continual faintings; general coldness; frequently pulseless; dejected and despondent; pains strong and frequent.
99	Ibid., p. 463.		Lymphatic; good health; 1st pregnancy	End of 8th month	Apparently partial	Os partially dilated.	Head; occiput posteriorly	Much affected by loss of blood; prognosis was alarming.
100	Monthly Journ. Med. Sci., Mar. 1851, p. 228; Wm. Smellie.		6th child	8th month				Vagina was plugged, and pains came on.
101	N. York Journ. of Med., 1849, p. 315; C. L. Mitchell.	35	Nervous temperament and feeble health; mother of several children	7th month		Os open, admitting end of finger; soft and yielding, and an inch thick; plugging at end of 1½ hrs.; os size of quarter of dollar; thin.	Head	No labor pains; pulse barely felt; arms and legs cold; could not raise the hand to the head or speak above a whisper; irregular respiration, and sense of constriction in the lower end of sternum.
102	Ibid., Mar. 1851, p. 276; Dr. Jas. Furgusson.		4th pregnancy	Period full	Partial		Head	
103	Smellie's Cases, vol. ii. collection 18, No. 3, Case 4, p. 271.		Multipara	Beginning of 9th month			Head	Pains at long intervals.
104	Ibid., p. 277.			Period full	Complete	When first seen, os the size of a crown; some hours after, fully opened.		
105	Ibid., Case 8.			Last of 8th month		Os a little open; advised the doctor to dilate gently during each pain.	Head	Had lost a great deal of blood, and had fainting fits.

...rning, &c.—Continued.

AMOUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSITION OF PLACENTA.	RECOVERY.	FATE OF CHILD.	REMARKS.
...emorrhage in 6th mo., ...en in 7½ month; was ...rrested, and returned ...om getting up; when ...ear 8th month, pains ...ame on.	Membranes broke; head came down and arrested the hemorrhage, and delivered soon.		Recovered after great peril	Living	Hemorrhage after delivery, from a portion of placenta remaining.
...ad for some days slight ...emorrhage; reappeared in 3 or 4 days, and ...eased; 2 days after this ...t returned; tampon.	Practised version, and delivered her.		Recovered by 8th day	Dead	Placenta covered by blackish crust.
...ot a kick in the loins, and the waters escaped; pains came on and a very considerable hemorrhage.	Delivered by turning, with ease.	Hemorrhage ceased immediately.	Recovered	Putrid	
...n admission, had had hemorrhage for 8 days; free bleeding came on on admission.	Placenta forced into vagina by the pains; passed in the hand, and delivered instantly.	Placenta followed the child, and hemorrhage ceased completely.	Was extremely low for some days but was convalescent in 3 weeks	Dead	Spasmodic trembling came on after delivery, as in preceding bad cases; fœtus not deprived of blood. (See *op. cit.*, p. 453.)
...slight hemorrhage at date; returned in 5 days, with pain, and continued abundant.	Rupture of the membranes had had no effect on the hemorrhage; forceps applied, and delivered with ease.	Placenta extracted; no further hemorrhage, but extreme exhaustion.		Living	Placenta exhibited a dark patch, where it had adhered; and she maintains that, when *over* the os, hemorrhage comes on in 6th or 7th month; by the side, it comes on later.
For 2 weeks, a constant oozing of blood from vagina; for 8 days, felt no life; for 3 days, discharge much increased.	When attempt to detach failed, hand was thrust through the placenta; child turned and delivered.	When pains came on, plug was removed, and, an attempt to detach the placenta "not readily succeeding, and flooding returning, it followed the child."	Recovered after an attack of fever	Dead; cord 3 times around the neck	
Awakened by general sense of uneasiness, and found free hemorrhage from vagina; had been bleeding thus considerable for 1 hour; no previous hemorrhage; hemorrhage continued profuse.	At end of 2½ hours, the hand was introduced, the placenta first encountered; the head seized, and the fœtus and membranes withdrawn entire.		Recovered	Dead	No unusual hemorrhage accompanied the withdrawal.
Considerable hemorrhage "prior and subsequent to delivery."	Waters escaped; pains insufficient; hemorrhage continuing; ergot given.	The body followed, "with the placenta."	Recovered	Dead for some time	
Taken with flooding the previous night; had occasional attacks during the preceding month; flooding severe.	Membranes sought for at edge of placenta and torn; waters escaped, and the head advanced.		Recovered		The flooding abated when the waters were discharged, and was entirely stopped as soon as the head plugged the os.
When pains came on, some blood flowed; hemorrhage not great; some hours after, pretty violent.	Then ruptured the membranes and turned.		Recovered	Living	
Taken about 24 hours before with large hemorrhage, and now and then a slight pain.	Os dilated in a few pains, and child expelled.	As the head descended, the detached part tore off, and passed down with it, 15 or 20 minutes before delivery.	Recovered	Alive and did well	Flooding ceased when waters escaped; death of child expected from laceration of placenta.

TABLE I.—*Recoveries* d

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CIRCUMS TIME OF DEATH.
106	Smellie's Cases, vol. iii., collection 33, No. 2, Case 5, p. 128.		Very weak habit, and in great affliction	Period full	Partial	Os fully dilated.		Excessively weak a low from violent la ing; had had convul
107	Ibid., Case 6.				Partial	In the evening, rigid and of size of a half-crown; in the morning, found largely open.	Head and funis	Pains came on in ev ing, and continued ing the night.
108	Ibid., Case 14.		Thin habit; slender constitution	Full time	Complete	Scarce admitted the fore-fingers.		Pulse scarcely to be f cold sweat and fatal morrhage.
109	Thomas Wheelwright, London Lancet, 1839–40, ii. 109.	26	Delicate, small, pallid	End of 9th month		Size of a crown, an hour and a half from beginning of labor; soft and yielding.	Head	Each pain attended by gush, but not alarmi pains strong throug out.
110	N. York Lying-in Asylum, N. York Journ. of Med., March, 1851, p. 277.		4th pregnancy		Partial	Os well dilated.	Head	
111	Dr. Moulton, of New Rochelle, communicated by.	20	3d pregnancy	8th month	Complete; not central	2 inches in diameter, and dilatable.		
112	Dr. D. H. Storer, communicated by.		Multipara					Considerably exhaust
113	Dr. L. Shanks, of Memphis, Tenn., communicated by.	40	Large size; mother of 8 or 10	7th month	Complete	Os relaxed; pelvis large.	Head	Was faint and exhaus ed, and almost drained of blood.
114	Mr. Radford, in London Lancet, 1847, i. 297.			7½ mos.	Complete		Head plug	No hemorrhage.
115	Ibid.			8½ mos.	Complete		Head	
116	Ibid.					Os rigid; plugged.		
117	Ibid.			Full time	Complete	Os rigid.		
118	Dr. H. G. Cox, Amer. Medical Monthly, Oct. 1854, p. 280.	25	2d child	Presumed full	Partial	Equalled 2 inches.	Head	
119	Ibid.		4th child	Presumed full	Partial		Head	

ning, &c.—Continued.

OUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSITION OF PLACENTA.	RECOVERY.	FATE OF CHILD.	REMARKS.
norrhage had been ry violent.	Ruptured the membranes, and delivered the child.	Placenta followed the child.	Rallied with great difficulty and recovered	Living	
lden violent hemorage came on in the orning, an hour before e visit, and continued.	Ruptured the membranes; turned, and brought down the legs; the flooding diminished; rested a half hour, and then delivered her.	Secundines followed.	Recovered in 3 weeks	Living	
ght a week before; reated since; came on ry profuse during the ay.	Gradually dilated the os till it admitted the hand; "broke through" the placenta; pierced the membranes; turned, and delivered easily.		Recovered contrary to expectation	Living; had its arm broken	Subsequent discharge trifling.
end of 8th month, fell ith violence, and had emorrhage frequently eurring until 9th onth.	Soon passed the finger by the placenta, and ruptured the membranes.	Placenta about half expelled before the head; returned it by the side of the head; delivery took place almost at once; it shortly passed.	Recovered entirely; getting strong slowly	Dead	
nsiderable previous emorrhage.	Pains insufficient; ergot given; spontaneous expulsion.	Expelled after the child.	Recovered	Dead for some time	
ad hemorrhage at 7th onth; was pretty coious; and also at 8th onth; had lost, perhaps, a quart, and had ains.	Vagina was plugged for an hour; it was then removed; turned, and delivered by the feet; from time when called to the birth, one hour and a half.	Expelled after the child.	Recovered	Living	After turning, hemorrhage ceased; ergot given before turning.
here had been much hemorrhage.	Turning.		Recovered	Dead	
rofuse flooding came on, and had for last 8 or 10 hours when he arrived.	Introduced the hand, and brought down the fœtus by the *head;* mother apparently insensible.	Delivered after the fœtus, and was nearly detached.	Slowly but perfectly recovered	Dead	
evere hemorrhage at 6th month; returned in 2 weeks; after which, child not felt; labor came on 6 weeks after 1st attack, *without bleeding.*	Spontaneous expulsion.		Recovered probably	Long dead	No loss of blood after expulsion; placenta considerably changed.
xcessive hemorrhage at 7th month; no pain; plugging, &c.; bleeding returned in a month, and pains came on 2 weeks after this.	Separated the edge of placenta; turned, and delivered.		Recovered probably	Dead some time	There was no flooding.
Flooding from 7th mo., and 8th repeated several times, the last so violent as to be dangerous; plugged; labor came on in 2 weeks.			Recovered probably		
Excessive hemorrhage at 8th month; plugged; child not felt after.	Placenta partly detached, and membranes ruptured; spontaneous expulsion.		Recovered probably	Putrid	Placenta much altered.
Almost pulseless; clothes and bed saturated with blood; had had hemorrhage occasionally for a week previous.	Head descended and compressed placenta; stimulants; expulsion spontaneous.		Recovered	Living	
Hemorrhage came on with labor.	Head compressed placenta; spontaneous expulsion.		Recovered	Living	

TABLE I.—*Recoveries* &c.

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION AT TIME OF DELIVERY.
120	Dr. H. G. Cox, Amer. Medical Monthly, Oct. 1854, p. 280.	24	2d child	Good health; full time	Complete	When admitted, allowed the finger; in 9 hours, 1½ inches.	Face	"Strength somewhat diminished."
121	Ibid.		2d child	7th month	Partial			Little bleeding; pain subsiding, and pulse feeble.
122	Ibid.	40	11th child	9th month; good health	½ attached	Dilated to 2 inches.	Breech	Had bled very largely; pulse scarcely to be counted.
123	Dr. L. Shanks, of Memphis, Tenn., communicated by.	28	Medium size; 5th pregnancy	7th or 8th month	Complete	At first, dilated about an inch.	Head	At midnight called.
124	Ibid.	18	Primipara; small size	Full time	Partial	Partially open, and dilatable.		So exhausted as to require immediate delivery.
125	Dr. Willard Parker, of N. York, communicated by.	40	10th pregnancy	Near full time	Complete			
126	Mauriceau, according to Dr. Lee's table in London Lancet, 1847, ii. 439, No. 8; date, 1669.				Placenta partially expelled		Foot and knee	
127	Ibid., Case 55; Ann. 1672.			7th month				Faintness.
128	Ibid., Case 59; Ann. 1672.			6½ mos.		Os gently dilated.		Frequent syncope.
129	Ibid., Case 68; Ann. 1672.							
130	Ibid., Case 106; Ann. 1674.			7th month				
131	Ibid., Case 176; Ann. 1676.			8th month				
132	Ibid., Case 210; Ann. 1678.			7th month				
133	Ibid.; Ann. 1678.							
134	Ibid., Case 423; Ann. 1686.			8½ mos.				
135	Ibid., Case 428; Ann. 1686.			9th month				
136	Ibid., Case 454; Ann. 1686.			7th month				
137	Ibid., Case 597; Ann. 1690.			7th month			Arm	
138	Ibid., lxii.; Ann. 1696.			8th month				Threatened with death.
139	Portal, according to Dr. Lee, in Lancet, 1847, ii. 548, Case 2, 1684.				Complete	Open to size of a crown; thin.		
140	Ibid., Case 29; 1671.			8th month	Complete		Head	Greatly exhausted.
141	Ibid.			8th month				Similar to last.
142	Ibid., Case 41; 1671.				Complete	Size of 30 sols piece.		Extremely weak; repeated syncope.

warning, &c.—Continued.

AMOUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSITION OF PLACENTA.	RECOVERY.	FATE OF CHILD.	REMARKS.
ad slight hemorrhage a month before; was awakened by a gush of blood; ost 3 pints; continued.	Passed hand, turned, and delivered.	Delivered with child.	Recovered and discharged; on 22d day, an attack of inflammation of peritoneum	Dead	
leeding had been very alarming.	Turning.		Recovered	Dead	
ad hemorrhage several times.	Feet brought down.	Child and placenta removed together.	Recovered on 10th day	Dead; "anæmic"	
rofuse bleeding came on during sleep, producing syncope; she had had 2 or 3 slight turns a few weeks before.	Placenta separated on one side, and membranes ruptured by a pin; morphia and ergot given; repeated next day; delivered by forceps.	Delivered after the child.	Recovered favorably	Partially putrid	But little bleeding after rupture of membranes.
rom 7th month, occasional slight hemorrhages; at full time, labor pains caused bleeding, which lasted 15 or 18 hours.	Os dilated; turning, and head delivered by forceps.		Recovered well	Living and did well	Mother faint and exhausted after delivery.
	Separated the placenta on one side; ruptured the membranes; turned, and delivered.		Saved	Saved	
	Placenta pressed back, and child extracted.		Recovered		
	Turning.		Recovered		
Flooding for 6 hours.	Delivered by turning.		Recovered	Living	Masses of coagula expelled after delivery.
Flooding for a month.	Labor pain; turned.		Recovered	Living	
	Entire ovum extracted or expelled.		Recovered		
	Turning.		Recovered	Dead	
Great flooding.			Recovered		Prolapsus funis.
	Turning.		Recovered		
Flooding for 4 weeks.	Turning.		Recovered		
Dangerous, of 4 weeks continuance.	Immediate turning.		Recovered		
			Recovered		
Great floodings.	Turning.		Recovered	Living	
Great and repeated hemorrhages.	Promptly delivered.		Recovered	Living	
Great weakness and loss of speech from hemorrhage; profuse hemorrhage for 8 days.	Delivered at once by turning, separating the placenta, and rupturing the membranes.		Recovered		
Profuse hemorrhage for 3 weeks.	Head was forced by pains through the placenta.		Recovered		Body almost drained of blood.
			Recovered		
Had had very considerable discharge; hemorrhage ceased 1 day; renewed.	Membranes ruptured; hand passed in turning.	Placenta extracted.	Recovered		

TABLE I.—*Recoveries af*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION TIME OF DELIVERY.
143	Portal, according to Dr. Lee, Lancet, 1847, ii. 545, Case 51; 1672.					7 lines in diameter.		In greatest danger.
144	Ibid., Case 55; 1672.						Umbilicus and placenta	
145	Ibid., Case 79; 1682.			7th month	Complete	Os slightly open; size of a crown.		Syncope; apparently sensible and dead.
146	W. Henderson, London Lancet, 1846, i. 144.	32	Had one miscarriage	Presumed full	Complete	Size of a crown piece, and dilatable.	Presumed head	"Pale, sick, and sleep retching pains, acc panied by gushes.
147	J. Challe, Lond. Lancet, 1846, ii. 428.		2d pregnancy	Presumed full	Complete	Rigid.	Presumed head	For several hours, H change in os; hem rhage passive; near c hausted in delivery trunk; head separat and subsequently c pelled.
148	John L. J'On, in London Lancet, 1845, ii. 644.	30	5th pregnancy	End of 7th month	Complete	Rigid at first; plugging; dilatable at delivery.	Apparently head	Hemorrhage and pa had ceased; ergot be given, which caus contractions.
149	R. Barnes, Lond. Lancet, 1847, i. 327.		3d pregnancy	7th month	Partial	Size of crown piece; soft and dilatable; membranes very firm.	Breech	No urgency; pains stron
150	Ibid.		5th pregnancy	Beginning of 9th month	Partial	Dilated, after plugging to the rim of a wineglass.	Foot	
151	London Lancet, 1847, i. 412; from L'Union Médicale, April, 1847.		8th pregnancy	Full	Partial	Size of 5 shilling piece; dilatable.	Transverse hip; hydrocephalic	Alarming.
152	Dr. Smith, Lond. Lancet, 1847, ii. 121.	34	7th pregnancy; robust; 6 stillborn	Apparently full	Presenting a small portion	Dilated.	Foot	Internal hemorrhage, very slight exter before placenta fell.
153	W. S. Gill, Lond. Lancet, 1847, ii. 93.	48	8th labor; weak and emaciated	Full	Complete and firmly adhered	Rigid; admitted the hand.	Presumed head	Faint and exhaust pains entirely absent
154	Ibid.	30	5th pregnancy	8th month	Complete	Very slightly dilated.	Presumed head	Syncope.
155	Ibid.	36	11th pregnancy; robust	Apparently full	Complete	Dilatable.	Presumed head	Pallid, with more th usual exhaustion.
156	R. Martin, Lond. Lancet, vol. i., 1848.				Apparently partial			
157	R. Y. Steele, L. Lancet, 1848, i. 282.	40	7th pregnancy	Full	Complete	2 inches in diameter; and flaccid.	Head	"Appeared in art mortis;" had had pain.

turning, &c.—Continued.

AMOUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSITION OF PLACENTA.	RECOVERY.	FATE OF CHILD.	REMARKS.
elivery the only hope.	Gradually dilated the os; carried the hand by the side of the placenta to the fundus.		Recovered	Living	
	Turning.		Recovered	Dead	
rofuse hemorrhage.	Delivered by turning.		Recovered		
easional for 2 weeks; during 6½ hours profuse.	Turning.	Rupturing the placenta and membranes.	Recovered	Dead	Placenta 9 inches in diameter.
ver 13 hours.	Forced 2 fingers through the placenta, and turned; ergot having been given through 3 hours.		Recovered	Putrid	Internal hemorrhage had been going on.
epeated during 2 or 3 weeks, and hemorrhage returned with pains.	Turning easy.	Placenta expelled 15 minutes after the child.	Long recovery	Dead 3 or 4 hours	
had been flowing for 2 weeks; during 6½ hours moderate.	Membranes ruptured; child expelled at once.	Withdrawn in 10 minutes and hemorrhage ceased.	Recovered	Dead	
emorrhage had been profuse until after plugging; it was felt detached; after this, it ceased entirely.	Membranes ruptured; feet brought down.	Thrown off; the part that had been detached was plugged.	Presumed recovery	Lived 2½ hrs.	When placenta found pretty extensively detached, it is said that the "hemorrhage, which has been considerable, is now moderate;" placenta was paler at one portion than elsewhere, and somewhat infiltrated with blood; the part which had been adherent had become detached.
requent attacks.	Turning.		Recovered	Decomposed	
ains continued.	Ether; pains aided by extraction.	Some hemorrhage arrested by pulling off placenta.	Recovered	Dead	
had been profuse.	Turning after dilating the os; perforation of the placenta.		Recovered after extreme peril	Living	Excessive hemorrhage after delivery.
Immense extent."	Turning after perforation of placenta.		Recovered with difficulty.	Living	Excessive hemorrhage followed.
refuse.	Turning after perforation of placenta.		Tedious recovery	Living	Attempt to detach placenta; given up from excessive pain and increased hemorrhage; no hemorrhage after delivery.
elivered before extreme symptoms.	Passed hand by placenta, and turned, and delivered.		Recovered	Living	
almost constant for 10 days.	Passed hand by the separated portion; turned and delivered.	Uterus expelled it in 10 minutes, without flooding.	Recovered slowly	Dead	Pressure of head on placenta caused cessation of hemorrhage, and pains came on.

TABLE I.—*Recoveries of*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION AT TIME OF DELIVERY.
158	E. Y. Steele, L. Lancet, 1848, i. 282.	24				Equalled crown piece, and rigid.	Head	Hemorrhage very pr fuse; danger immine uterus firmly contrac and waters gone.
159	Dr. Reid, Lond. Lancet, 1848, i. 313.		9th pregnancy	7½ mos.	Partial	Dilatable.	Head	"Much exhausted by lo of blood;" no pains u til attempted dilate a few minutes bef delivery.
160	W. F. Ashham, London Lancet, 1848, ii. 422.	40	6th pregnancy	Full	Partially detached; complete	Dilatable.	Shoulder	Blanched; restless; almost pulseless.
161	J. H. Davis, in London Lancet, 1848, ii. 423.			Presumed full	Partial	Dilatable.	Head	Blanched and enfeeble
162	Ibid.	29	3d pregnancy	7th month	Partial	Rigid; size of a shilling piece; relaxed by chloroform.	Presumed head	Much weakened; pu trifling and irregular.
163	W. W. Jones, in Prov. Med. and Surg. Journal, 1845, p. 711.	30	5th pregnancy	9th month	Edge dipping over the os	Very flabby; fully dilated.	Head	Very much reduced, s greatly alarmed.
164	J. H. Davis, in London Lancet, 1849, ii. 298.	36	4th pregnancy	Apparently full time	Apparently partial	Os at first undilated; at last, admitted 3 fingers; from 2 to 3 hours in dilating.	Not stated	Blanched; quick, wea pulse; no restlessness.
165	G. F. Knipe, in London Lancet, May, 1851, i. 599.	34	4th pregnancy	End of 8th month	Partially detached; complete	Slightly open, but dilatable.	Head	Been in labor, and bled ing also, for 5 hour skin cold and clamm almost pulseless; pains for 2 hours.
166	S. Henson, Lond. Lancet, June, 1851, i. 620.	35	Strong and healthy; 10th pregnancy	Full period	Complete	Os dilatable.	Hand	There had been a gr deal of bleeding betwe the pains; pains h ceased; bleeding sligh pulse good.
167	W. Nix, London Lancet, 1851, ii. 224.				"Over the os"	Soft and yielding.		Talked incoherently, a was restless.
168	R. B. Jordison, London Lancet, 1844, ii. 157.				Complete	Crown piece.	Presumed head	
169	A. J. Simpking, London Med. Gaz., Jan. 1846, p. 175.	26	2d pregnancy	Just viable	Complete	Dilatable.	Head	Suffered from inflamm tion of saphena vein did not know she w pregnant.
170	Dr. E. Skae, reported to Edinburgh Obstet. Soc.; in Month. Journ., 1848, p. 198.		3d pregnancy; 2 previous labors preternatural	About full	Complete	Well dilated.	Head	Apparently not urgen had been plugged by midwife.
171	Dr. Rigby, Lond. Med. Gaz., xiv. 367.				Covered to extent of a third	Crown piece at time of examination.	Head	Weak, not faint; pul tolerably good; had lo a good deal of bleed pains very slight.

turning, &c.—Continued.

AMOUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSITION OF PLACENTA.	RECOVERY.	FATE OF CHILD.	REMARKS.
Repeated during a week.	Hand introduced; pains became vigorous; pressure on placenta stopped hemorrhage; turned; delivered in an hour.	Expelled in 20 minutes after the child.	Recovered	Dead	
Bleeding for a short time before plugging.	Waters drawn off by a trocar; ergot and plug.	Extracted immediately after the child.	Recovered	Dead	
For a month, had hemorrhage after slightest exertion, and still losing blood.	Passed hand along the edge of placenta; ruptured the membranes, and turned.	Placenta followed quickly.	Recovered slow but protracted	Dead	Hemorrhage ceased, and she rallied.
Had been in labor, with flowing, for 2 days.	Turning.	Was expelled.	Recovered	Presumed dead	
Labor had lasted 24 hrs., with more or less hemorrhage; now very considerable.	Turning, after chloroform had relaxed os uteri.	Immediately expelled.	Recovered	Dead	
Light during 9 or 10 days, and continual at 6th month, and more or less every day during last month; had been very free for 2 hours.	Ruptured membranes, and brought down feet; delivery took place soon.	Placenta followed immediately.	Doing well	Alive	
Had hemorrhage during 2 days and was plugged.	Brought down the foot and leg, and left to spontaneous expulsion.	Hemorrhage after delivery, which was arrested by removal of placenta.	Recovered	Not stated	
10 days before, had hemorrhage after a walk, and severely deluged in blood.	Hand passed by placenta, after dilating the os, and feet brought down; no contractions; ergot; born in half an hour.	Placenta expelled in a few minutes after, with large masses of coagula.	Recovering	Not stated	After expulsion of placenta, no more hemorrhage than usual.
No hemorrhage during pregnancy.	Passed the hand *through* the placenta; after several trials, drew down a foot.		Recovered	Dead	
Occasional for 2 or 3 days; became very alarming.	Passed hand through placenta, and turned; rested, and delivered.	Removed placenta soon.	Recovered	Dead	Very little hemorrhage after bringing down the child or removing the placenta.
Slight for some weeks, and a few days before violent and became very profuse.	Dilated the os, separated a portion of the placenta, and brought down feet and body.		Recovered	Living	
During 16 days, free hemorrhage; plugging of the vagina.	Stimulants and ergot given, and fœtus expelled.	Expelled in 10 minutes.	Recovered	Lived 20 minutes	Child just viable; hemorrhage gradually ceased after birth of the child; placenta 11 and 9 inches in diameter; weighed 18 ounces; one edge covered with clots for 3 inches.
Hemorrhage 5 days previous; found there had been considerable flooding.	Repeated attempts to drag away placenta by midwife; membranes ruptured by hand; pains came on; expelled in 10 minutes.	Forced by pains towards sacrum; followed fœtus immediately.	Recovered	Dead	
Hemorrhage 3 weeks before, and again at labor.	Ergot produced compression of placenta; suppression of hemorrhage, and expulsion of the child in a short time.		Apparently got well	Dead	

TABLE I.—*Recoveries of*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION AT TIME OF DELIVERY.
172	Dr. Rigby, Lond. Med. Gaz., xiv. 367.	27	4th pregnancy; healthy	Full time	Complete	Admitted 4 fingers, and dilatable.	Head	No pulse at wrist; not easily roused; scarcely any pain.
173	Dr. Jameson, in Dublin Medical Journal, 1836, p. 389.		9th child		Partial	Os size of a crown piece.	Head	Had not suffered.
174	Ibid., p. 390.			8th month	Complete	Size of a half-crown; very rigid.	Head	To all appearance dead; pulseless; pallid; cold clammy sweat; "uterus by no means in action."
175	Dr. Alex. Tyler, Dublin Medical Journal, 1847, p. 362.				"Placenta presenting"	Not fully dilated.		No pulse perceptible; great prostration.
176	Ibid., p. 363.		9th pregnancy		"Placenta presenting"	Well dilated.		"Dangerous state from loss of blood."
177	Ibid.					Os size of a shilling at first; plugging; in 24 hours, size of a crown piece; plugging; in a few hours, admitted the hand.		A gush at each pain.
178	Ibid.		6th pregnancy	Full time	Complete	Undilated at first; plugged, and, in 2 hours, plug expelled; os dilated.	Head	Skin cold and clammy; faint and thirsty.
179	Ibid., p. 366.	31	2d child	Apparently full	"A lip of the placenta"	Well dilated.	Arm	Nothing apparently urgent.
180	Ibid.				Complete			Very exhausted from loss of blood.
181	Mr. Stewart, in Med. Clinical Trans., iv. 358.			7th month	Complete	Admitted two fingers.		Very alarming; countenance ghastly; extremities cold; lips pallid; tremors; thirst and vomiting; low delirium; pulse occasionally perceptible; hemorrhage somewhat abated.
182	Wm. Simpson, London Lancet, 1839–40, i. 492.				Complete	Os size of a crown piece; gave ergot, and, in 1½ hours, dilated to fullest extent.		Pains frequent and regular; hemorrhage increased by ergot.
183	T. S. Wells, in London Lancet, 1839–40, ii. 19.		Robust and young; 1st child	Full time	Complete	Size of a shilling; rigid; vagina plugged.		After plugging, pains regular, but no hemorrhage; at the end of 6 hours, the placenta forced out and a great gush of blood.
183 (a)	Dr. I. Fountain, communicated by.			Full time	Complete	Partially dilated; dilatable.	Head	
183 (b)	Ibid.			Full time	Complete	Partially dilated; dilatable.	Head	

arning, &c.—Continued.

AMOUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSITION OF PLACENTA.	RECOVERY.	FATE OF CHILD.	REMARKS.
Suddenly seized with a profuse hemorrhage, and sent for a midwife.	Ruptured membranes; no pulsation in cord; brought down a foot, and delivered the trunk; gave ergot; head born some time after.	Placenta quickly expelled.	Not stated	Dead	No hemorrhage during or after the operation.
Seen in labor 4 hours, and hemorrhage at each pain.	Ruptured the membranes, and pressure of the head stopped the bleeding; child born in 1 hour.	Followed in 10 minutes.	Recovered	Not stated	
Very profuse hemorrhage during 2 hours, and continued.	Plugged; gave stimulants; and, as reaction and pains returned, fingers passed by placenta, and membranes ruptured; child born in 2 hours.		Not stated	Dead 2 days	Hemorrhage ceased on escape of the waters.
Very profuse and alarming during 12 hours.	Turning and delivery, occupying ¾ of an hour; stimulants constantly administered.		Recovered	Dead	
	Passed the hand between the placenta and uterus, and brought down a foot; delivery soon completed.		Recovered	Living	Hemorrhage ceased completely when foot brought down.
Hemorrhage a month before; repeated in 10 days, and 8 or 10 pains every day for 5 days, with flooding at each.	By turning.		Recovered	Living	
Copious hemorrhage at 3 P. M.; lost several pints before half past 11.	Separated the placenta; passed in the hand, ruptured the membranes, and delivered in 15 minutes.	Was removed.	Recovered	Dead	
Hemorrhage at intervals during 4 days.	Turning.		Recovered	Dead	
	Membranes ruptured; delivered by crotchet, on account of depression.		Recovered	Dead	
Flooded excessively for a month previous; discharged at least a pint of blood daily.	Gave tr. opii 80 drops; in 20 minutes, 120 drops; in 1 hour, placenta separated on one side; hand passed by it; feet brought down; 80 drops more given; fœtus easily extracted.	Separated immediately after by the hand, and gradually extracted from the vagina.	Recovered	Dead	
Five days before, had very profuse hemorrhage for 24 hours; arrested for 5 days; then returned, and continued very profuse for several hours before sending for help.	Hand with great difficulty passed by placenta, and feet brought down; placental mass was a great hinderance to descent of the child; hemorrhage continued after the delivery; pains feeble.	Placenta found adherent to almost entire os; it was at length brought away in shreds with considerable difficulty.	With difficulty kept up for 24 hours; "doing as well as can be expected"	Dead before delivery	Placenta had more appearance of mamma or pancreas; highly vascular and organized; nearly the size of 2 hands.
Perfectly well till 2 hours before; when had a "cramp" and hemorrhage, which increased.	Hand passed immediately, on expulsion of the plug; membranes broke; turned, and delivered.	Placenta immediately followed.	Recovered	Not stated	
	Turning.	Perforated.	Recovered	Living	
	Turning.	Perforated.	Recovered	Living	

TABLE I.—*Deaths after*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION AT TIME OF DELIVERY.
184	J. H. Davis, in London Lancet, 1845, ii. 123.	35	3d child	8½ month	Complete	Apparently dilated.	Head	Almost pulseless: still bleeding; ergot; pain continued.
185	W. Harding, in London Lancet, 1847, i. 686.			Presumed full	Complete	Size of a half-crown.	Apparently head	Apparently not urgent.
186	A. Martin, Lond. Lancet, 1848, i. 21.				Complete			
187	London Lancet, 1841–42, ii. 642.	36		Full	Complete	Size of a half-crown, and dilatable.	Apparently the head	Spirits good; no distress or syncope: pulse 100, soft; apparently had not been profuse.
188	John J. Jackson, Guy's Hospital Reports, 1847, ii. 256.	39	Delicate; 9th child		A small portion over posterior edge of os	Yielding.	Head	On 22d, exceedingly low after hemorrhage; pains ceased; allowed to remain to 23th.
189	Drs. Blundell, Ryan, and Austin, in Ryan's Journal, vol. i., 1832.	41	11th pregnancy	7th month	Complete	Os about the size of a shilling; relaxed after.		Seized with fainting; at visit at 8½ A. M., countenance exsanguine, jactitation, pulse small, and repeated syncope; prostration increased after the escape of the waters; condition most alarming.
190	John Ingleby, in Ryan's Journ., vol. i. 1832, p. 479.		Very delicate	Full time	An edge detected quite detached; complete	At 7 A. M., os found lax, equalling half-crown.	Head	At 4 A. M., pains ceased, but flow increased: began to vomit; at 7 A. M., was faint and cold; respiration quick; pulse feeble, and scarce to be counted.
191	W. Bainbridge, London Lancet, 1839–40, ii. 197.			9th month	Complete	When os scarcely at all dilated, plugged and left.		
192	Walter James, Lond. Med. Repository, xxvi. 226.		5th pregnancy; asthmatic	7½ month	Complete	When first seen, just admitted the end of the finger; on second visit, fully dilated.		When called again, 2½ hours after, appeared dying; lips and gums pale; pupils much dilated; mind wandering; breathing slow and labored; restless; cold limbs.
193	Dr. Collins, Case 34, p. 54.	40	4th pregnancy	Full time	Found at the os	Size of a half-crown; not very rigid.	Presumed head	Reduced to a state of great debility; a slight pain before the hemorrhage; no change but in speedy delivery.
194	Ibid., Case 89, p. 55.	36	3d pregnancy	Full time	Complete	At close of 2d day, at recurrence of hemorrhage, it equalled a half-crown, and very rigid; 6 hours after, it was "sufficiently dilated."	Head	Bleeding more alarming; no pain.

Deliveries by Turning, &c.

AMOUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSAL OF PLACENTA.	PERIOD OF DEATH.	FATE OF CHILD.	REMARKS.
Large loss.	Placenta perforated; failure at version; hand passed between the placenta and uterus, followed by version.	Withdrawn after the child.	2 weeks, from syncope, after getting up.	Dead	
	Turning.		Died during delivery.	Dead	Cause of death obscure; had previously had a spasmodic pain about the heart.
Flooded during 14 hrs.	Placenta perforated; version.		13 days after, of diarrhœa.	Dead	
Hemorrhage at intervals for 10 days.	Passed the hand by the placenta; ruptured the membranes; turned; uterus acted with considerable power.	Came away directly.	⅔ of an hour.	Dead	Uterus contracted well; hemorrhage ceased; promised well; suddenly cried out that she was faint and should die, and sank.
Hemorrhage between 3 and 4 weeks previous; also, 8 days before.	On 25th, sinking without new cause; delivered by turning.	Removed.	Day after delivery.	Dead	Hemorrhage on turning trifling, but depressing; transfusion day after delivery.
Frequent gushes of blood during the week, and slight several times during the month.	Placenta perforated at 8½ A. M., with difficulty, ergot having been given; during perforation, pains commenced; ℥iv blood lost, and hemorrhage ceased; at 2 P. M., transfusion, and at 3½ P. M. had rallied completely; at 4½, ergot, followed by turning, which was done speedily and with ease; ℥ij of blood lost.		Very soon after delivery, internal hemorrhage came on; transfusion in vain; died at 5 P. M.		
Copious hemorrhage 3 weeks ago; no return till 1 A. M., when flow was very considerable.	At 7 A. M., plug passed in as far as possible between the detached portions and the placenta; in 1 hour, the os dilating; ruptured the membranes; less than a half hour, child born.	Soon expelled.	"In suffering from the effects of loss of blood."	Born alive but not resuscitated	Marks of the several detachments on the placenta.
3 weeks before delivery, had hemorrhage, while drawing water, which continued to her death.			Death.		
For last few weeks, slight loss of blood daily; lost 3 pints on first day; profuse hemorrhage at night; when seen on second day, slight flow.	After giving stimulants, she rallied somewhat; hand passed through the placenta, and feet seized; one pain only and hemorrhage followed; fœtus at once extracted; body brought forth by the forceps, and head was opened.		Died immediately after extraction of child, 30 hrs. from the 1st attack of hemorrhage.		"The pressure of the gravid uterus appeared to act beneficially in compressing the abdominal vessels, and preventing collapse, for immediately on the removal of the child, life began to fail."—*Note.*
"Had been shedding for 5 days before;" 1½ hours after admission, a sudden and most profuse flow.	Hand introduced; the womb contracted strongly and felt well; contracted after delivery.	Came away with child.	Died within 2 hours.	Living	Laceration of the neck anteriorly, and to the right; great debility, and slight hemorrhage at intervals, followed the delivery.
Hemorrhage 2 days before admission; ceased, and no pains; on return, cordials, &c.; waited 6 hours; return of hemorrhage.	Hand passed on 2d, return of bleeding, through the placenta, and version.	Adherent, and brought away almost immediately after.	Uterus contracted well; bleeding continued; died in ½ an hour.	Living	

TABLE I.—*Deaths after Delivery*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION AT TIME OF DELIVERY.
195	Dr. Clarke, Dub. Hospital, in Dr. Collins's work, p. 54.		1st pregnancy					
196	Dr. Robert Lee's Lectures, p. 373, Case 1; Clin. Med., p. 260.	42			Complete	Rigidity of os.		
197	Ibid., No. 2, Clin. Med., p. 261.			9th month	Complete			
198	Ibid., No. 7, Clin. Med., p. 266.			7½ month	Complete	Os hard and undilatable at first; 2 days after, permitted turning.		
199	Ib., No. 12, Clin. Med., p. 271.				Complete	Os considerably dilated, rigid, and unyielding.		Insensible, and cold extremities.
200	Ib., No. 13, Clin. Med., p. 272.		2d pregnancy	8th month	Placenta detached from the os	Rigid and slightly patulous day before delivery.	Head	
201	Ib., No. 14, Clin. Med., p. 274.			7th month	Partial			
202	Ib., No. 15, Clin. Med., p. 276.			7th month	Adherent to posterior part of os	Os wide.		Extremely faint.
203	Ib., No. 16, Clin. Med., p. 277.			8th month	Complete	Rigid at first.		Great exhaustion.
204	Ib., No. 22, Clin. Med., p. 281.			7th month	Complete			Fits of syncope.
205	Ib., No. 23, Clin. Med., p. 282.			8½ month	Complete	Thick and rigid; artificial dilation successful.		
206	Ib., No. 24, Clin. Med., p. 283.			7½ month	Complete	Rigid and undilatable; size of a crown piece.	Head	
207	Ib., No. 25, Clin. Med., p. 285.	33	Distorted pelvis	7th month	Complete	With difficulty introduced hand.		
208	Ib., No. 29, Clin. Med., p. 289.			7th month	Complete	Dilated to size of a crown piece.		Syncope.
209	Ib., No. 35, Clin. Med., p. 295.			9th month	Complete	Size of a half-crown; thin and dilatable.		
211	Guy's Hospital Reports, vi. 80; Dr. Lever.	39	16th confinement					

Turning, &c.—Continued.

OUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSAL OF PLACENTA.	PERIOD OF DEATH.	FATE OF CHILD.	REMARKS.
	"Labor was forced."			Dead	
·ofuse 7 days before abor; much blood lost rhile plugged.	Turning attempted, but failed; plugged for several days; turned at last without much difficulty, followed by exhaustion.		Died after 18 days; inflammation of lungs, pleura, &c.		
ıdden profuse hemorhage continuing till leath, which was sudlen.	Died undelivered, before seen by a practitioner.		Died.		
oxing for 14 days, oming on spontaneusly, and no pain; heeked for 2 days; udden profuse reurn.	Turning easy.		Died in a few days.	Living	
rofuse during 8th month.	Placenta separated by the fingers, and turning.		Died 2 hours after delivery.		Hemorrhage after expulsion of placenta, and sank.
lemorrhage in 8th month, after great exertion.	On 2d day, membranes ruptured; head descended between placenta and womb.		Died at a remote period.	Dead	Delivery completed without hemorrhage.
lemorrhage for several days; exhaustion at last after a discharge of blood.	Membranes ruptured; hemorrhage ceased; labor came on in 2 days.		Died on 16th day, from phlebitis and pneumonia.		
lemorrhage day previous, and returned; ergot had been given repeatedly.	Turning in 5 minutes easy; no hemorrhage followed.	Removed in ½ an hour.	Died on 10th day, from uterine phlebitis.	Dead	
Repeated hemorrhage during 8th month; controlled for some days.	Turning at last; recovered for 2 hours.		Died suddenly, 2 hours after.	Living	
Flooding at intervals for 5 days.	Turning; faintness, cold extremities, and exhaustion; hemorrhage arrested.		Died at a remote period, of phlebitis.		
Three attacks during one month, at long intervals; renewed spontaneously and with great violence.	Two fingers passed between placenta and uterus, and foot brought down; turning with great difficulty; labor completed in half an hour, by artificial dilation.		Died half an hour after delivery, from loss of blood.		Hemorrhage continued in spite of all treatment, and complete exhaustion followed.
Hemorrhage arrested for a time by a cold, and renewed.	The fingers pushed through placenta, and membranes ruptured; head descended, and hemorrhage ceased; labor lasted during the day; exhaustion came on; head perforated; delivery very difficult.		Died soon after delivery from loss of blood.	Dead	Complete exhaustion.
Profuse at 5½ month, and repeated at 7th month, lasting 3 days.	Hand thrust through placenta; delivered by turning; head removed with great difficulty.		Died 1½ hour after delivery.		Exhaustion from time of delivery; laceration of cervix.
Two attacks of flooding in the 7th month, at intervals of 3 weeks.	Turning in 15 minutes, without much difficulty.		Died 4 hours after delivery.		Convulsions came on during extraction of child, lasting till death.
Flowing at beginning of 8th month, very severe at end of a month.	Turning easy; syncope followed; she never rallied.		Died 4 hours after delivery.	Living	
Previously had two severe losses of blood, and no help.	Turning.		Died immediately after delivery.		

TABLE I.—*Deaths after Deliv*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION TIME OF DELIVER
212	Monthly Journ., August, 1852, p. 171; Dr. A. Thompson Lowne and Dr. Gordon.	34	Able bodied; 3 miscarriages; then 1 child		Complete	Os open half an inch, and rather rigid; ergot given; os began to dilate; 4 hrs. after, it admitted the hand; os dilatable.		Had bled very pro ly; great anxiety alarm, and some dency to symp symptoms now mended delivery.
213	Mr. Griffin, from British Record, 1848, p. 105, in Braithwaite, xvii. 295.							When first seen, in a state of great p tration; was plug in 35 hours plug moved.
214	Smellie, vol. iii., collection 36, No. 2, Case 3.		Multipara		Complete	Os largely open.	Head	Excessively weak low; fainting; cold tremities.
215	Ibid., Case 8.				Complete	Os largely open.		To all appearance ing.
216	Smellie's Cases, vol. iii., collect. 33, No. 2, Case 16, p. 152.		6th child	8th month		Os lax; equalled half a crown.		Excessively we faint, and low.
217	Dr. W. C. Roberts, in Amer. Journ. Medical Sci., vi. 534.	26	Delicate; 2d pregnancy	8th month		When os equalled 2 shilling piece; membrane ruptured; dilated with some difficulty.	Head	When called, pul full; no exhaust until toward expi tion of 48 hours; th exhaustion came rapidly.
218	Ibid., New York Annalist.	26		8th month	Complete	Os at first equalled 2 shilling piece; became thinner and dilatable after plugging.	Head	She fainted, and, af it, pulse not weak, b remarkably quick frequent; on return bleeding great agi tion.
219	Dr. Burwell, in Amer. Journal Med. Sciences, July, 1846, p. 144.	21	3d labor	Full time	Three-fourths or four-fifths over os	One and a half to two inches, and yielding.	Head	When seen, was wi out pain (pains h come on night befo pale, waxen look; sk covered with co sweat, increasing drops during turn faintness; pulse 13 very soft; appearan languid and abandon ed; had indistinct v sion.
220	Rigby's Essays, Case 7.					Os open.		Was greatly sunk, an seemed almost dyin

Turning, &c.—Continued.

NT AND DURATION F HEMORRHAGE FORE DELIVERY.	MODE OF DELIVERY.	DISPOSAL OF PLACENTA.	PERIOD OF DEATH.	FATE OF CHILD.	REMARKS.
been in great ex-ment from her band's conduct, , during a fit of ghing, had profuse orrhage; was ve-profuse; checked, returned in 2 ks slightly, and tinued more or less 5 days.	Turning, not without considerable force; "os did not offer any considerable resistance."	Extracted.	Died on 7th day.	Dead	Much exhausted by delivery.
r having had slight ns for 3 hours, sud-ly lost a pint and alf; bleeding ceas-after plugging.	Descended spontaneously, after removal of the plug.	Pains feeble; ergot given; uterus relaxed and dilated, but no bleeding; hand passed in; placenta was half detached; the rest separated.	Died in 15 d'ys, of irritative fever, apparently from absorption of putrid matter.	Had been dead some time; was putrid	The detached part of the placenta was covered with coagulated blood firmly adhering.
l had a small de-se of flooding for se-ral days, but, for me hours, it had en violent; had had me pains, which d left for 2 hours.	Passed the hand between the os and placenta; membranes ruptured, and leg seized; delivered with ease.	Secundines followed.	Rallied after delivery but sank in an hour.	Dead	The detached part of the placenta was dark livid, the rest fresh; flooding "abated" after delivery; neglect of her physician, who mistook the placenta for a coagulum.
commencement of bor, had slight flood-g, which had gradu-ly increased during hours.	Could not perforate the membranes; *pierced the placenta*, and turned.		She died in a few minutes.	Living	Flooding stopped in delivery of the child.
bject to floodings for months.	Dilated the os; tore the membranes, turned, and delivered.	Separated it with some difficulty from its adhesions.	4th day after delivery.	Dead several days	No sensible flooding after delivery.
oding came on hile making violent ertion, and had lost chamber full; one eek after, profuse emorrhage again, nd continued at in-rvals till mem-ranes ruptured.	About 48 hours after called, the membranes were ruptured; in a few hours ergot, followed in 6 hours by turning; os dilated with some difficulty, and placenta perforated.		Died 10 minutes after delivery.	Dead many hours	A gallon of blood was lost from first to last, and no fainting till towards the close of life.
rst hemorrhage at th month, and re-eated till 8th, when, hile evacuating the owels, there was a ush, and 2 quarts ost.	Plugged at first; a few slight pains followed during the night; bleeding came on by daylight; saturated the tampon, and ran down the limbs; hemorrhage became abundant; placenta perforated, and child turned.	Uterus stimulated by hand, and placenta expelled.	Died of peritonitis on 3d day.	Died during delivery	No syncope followed delivery, and no blood of any consequence; he thinks, from the pulse, that peritonitis might have begun before delivery.
ery profuse flooding, or 5 weeks before; ost several quarts; days previous to la-or, it came on freely.	Coagula in vagina; little hemorrhage; membranes ruptured by finger, and 2 or 3 slight pains came on; fainted during one; head distorted os; ergot, brandy, &c.; died undelivered.		Died 5 hours after rupture of membranes; pains came on at night; died next afternoon.	Removed 4 hours after death	Not more than 3 or 4 ounces lost from rupture of membranes till death; on *post-mortem* examination, body entirely blanched; not the least red tissue in uterus.
ad been flooding ma-y hours, and lost an mmense quantity of blood.	Turned easily at once, but delivery of head greatly retarded.		Died next day.	Putrid	Pelvis narrow and distorted; head perforated, and delivery very difficult.

TABLE I.—*Deaths after Delive*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION TIME OF DELIVER
221	Rigby's Essays, Case 10.			Last month	Complete	Very little open, and the placenta could not be felt.	Breech	
222	Ibid., Case 14.		4th pregnancy; florid and healthy appearance	Full time	Complete	Uterus, when seen, very little open.	Head	Was almost pulse "most threatening pearance;" pulse ed.
223	Ibid., Case 15.				Complete	Shut, but loose and relaxed.		Seemed to be dying
224	Ibid., Case 47.			Full time	Complete	Admitted the hand.	Presumed head	"Faint to an extreme
225	Ibid., Case 58.			Beginning of 9th month	"At the os"	Perfectly loose and yielding.		Very much reduced loss of blood.
226	Ibid., Case 81.				"Presenting"	"Os perfectly loose."		When surgeon until she was reduced last extremity.
227	Ibid., Case 82.	42	Very weak, and ill of malignant fever over a week	8th month	"At the os"	Loose and dilatable.	Apparently head	
228	Ibid., Case 89.		Very weak and delicate; feeble health from frequent sickness; multipara.		Fixed to the os		Apparently head	Feared very much event.
229	Ibid., Case 98.		A wretched, destitute, neglected pauper	Full time	"Attached to mouth"	Perfectly lax.		In a dying state when seen.
230	Madame Lachapelle, tome ii. p. 415.	26	2d pregnancy; emaciated and feeble; had had violent angina, and symptoms of pneumonia, for which bled and leeched	7th to 8th month	Partial; detected on admission	At first, rigid; dilated on 16th slowly.	Head	
231	Ibid., p. 419.	27	1st pregnancy	7th month	Inserted over the orifice; complete			

Turning, &c.—Continued.

UNT AND DURATION OF HEMORRHAGE EFORE DELIVERY.	MODE OF DELIVERY.	DISPOSAL OF PLACENTA.	PERIOD OF DEATH.	FATE OF CHILD.	REMARKS.
ation of flooding out 2 hours; died ore aid could reach r.	Died undelivered.				After death, placenta found separated a space not bigger than a crown piece.
oon, some pain and ght flooding; in ening, sudden pro- e hemorrhage, and it an astonishing antity of blood.	Dilated first with one finger; perforated placenta, and delivered easily by the feet.		Died 6 hours after, from exhaustion.	Not stated	
all hemorrhage 24 urs before was seen physician; "now creased to a most olent degree sud- nly; reduced in a ort time to the de- orable state.	Dilated easily and turned readily, passing the hand by the placenta.		Half an hour after delivery.		Here the attendant sent for him, after this profuse hemorrhage came on, instead of delivering at once. Up to this time, Rigby was not aware of the necessity of knowing the position of the placenta.
d been several hours oding considerably.	Delivered at once with ease.	Placenta adherent to the cervix; could not be removed for 1½ hrs.	Died 12 hours after.	Not stated	Discharge was kept up by attempts to separate the placenta; he thinks the result due to it.
morrhage accom- anying labor had een excessive.	Delivered fœtus and placenta with little difficulty.	Withdrawn.	Fever set in on 3d or 4th day, and died in a few days.	Not stated	Was better after delivery, and had but little flow after it.
peated floodings dur- ng several weeks, nd much blood lost t each.	Turning perfectly easy.		Died in a half hour after turning.	Not stated	She had lost an excessive quantity.
few hours before la- or, pains came on, vith bleeding—which ncreased.	Turned at once with ease.	"Came away very easily."	Died of the fever.	Not stated	Whole loss not serious to one in health.
abor began with great looding; not called ill lost a great deal of blood.	Turned at once with ease.		Died well till 3d day, when a fever set in, and she soon died.	Living	
had been in labor with looding; unattended for a day or two.	Delivered with perfect ease.		Died in 2 hours after delivery.	Dead	
had hemorrhage and pain on admission, on 11th; on 16th, it in- creased, and edge of placenta descended; tampon applied.	Spontaneous expulsion took place on 20th, and she was in a satisfactory state for an hour.		Soon after delivery, hemorrhage returned, and she died 2½ hours after delivery.	Dead	The child was plethoric; mother anæmic; hence, no anastomosis between them; but it died asphyxiated.
hemorrhage came on; its source recognized; tampon applied; it remained in 3 days; no suffering; fever, &c.	Then pains came on gradually, and, in 20 hours, child and placenta expelled; putrid.		For 1½ hour most satisfactory; then chills came on; dyspnœa; suffocation, and died 2 hours after delivery.	Putrid	Next day, the odor was offensive; cavities filled with putrid gas; uterus and parenchymatous organs infiltrated; right lung adhered to pleura; left pleural cavity filled with serum and lymph; this pleuritis seemed due (she thinks) to reaction succeeding lypothymia, caused by hemorrhage; or was it a spasmodic hypothymia?

TABLE I.—*Deaths after Delivery*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL COURSE TIME OF DELIVERY.
232	Madame Lachapelle, tome ii. p. 422.	25	Large and robust; 2d pregnancy	8th month	Partial	Completely open.	Head	On 7th, pains came
233	Ibid., p. 426.	24	6th pregnancy	7th month	Partial	On 11th, rigid and little open.	Head	On 14th, strong pa came on; hemorrha continuing; os un lating; tampon imp fectly applied; f failing, membran ruptured.
234	Ibid., p. 435.	34	Large and strong; 2d pregnancy	8th month				On 28th and 29th, v lent chills; tenderne of abdomen on pr sure; high fever; ab pain in side of thor (blister); labor pain delirium, with pain abdomen.
235	Ibid., p. 438.	25	Strong constitution	9th month	Complete	Admitted the hand.	Feet	
236	Ibid., p. 441.	21	Good constitution; sanguine temperament; 1st pregnancy	7½ month	Complete	At the end of 9 days, on admission, neither dilated nor relaxed; at last, after repeated syncopes, it was dilated.	Head	She was reduced to t last degree of feebl ness; thus watch for 9 hours.
237	Ibid., p. 445.		Epileptic; had been bled 5 or 6 times during pregnancy for plethora; 2d pregnancy	Beginning of 9th month	Partial	Not dilatable until 12th	Head	On 12th, blood flow in abundance.
238	Ibid., p. 454.	41	Feeble; lymphatic; 4th pregnancy	End of 8½ month	Partial	6 to 8 lines when membranes ruptured.	Head	Vomiting returned af ter rupture of mem branes, and pains be came stronger.
239	Ibid., p. 457.	31	Feeble; ordinary good health; 2d pregnancy	Beginning of 8th month	Complete	On admission, open, but of some length; 24 hours after tampon, it was dilated.	Head	24 hours after tampon it came on; abundan after removing it fo examination.
240	Dr. D. H. Storer, communicated by.		1st child					
241	Dr. L. Shanks, of Memphis, Tenn., communicated by.	20		Full time	Complete	When first seen, a little dilated; os next day dilated.		Fainted, fell, and he morrhage abated; the next day, pains came on, and increased flooding; great ex haustion.

Turning, &c.—Continued.

OUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSAL OF PLACENTA.	PERIOD OF DEATH.	FATE OF CHILD.	REMARKS.
d occasional hemorrage from 5th to 8th onth; at this time, mpon required on h; bleeding suppressed on 6th; headhe and thirst; feverh; v. s. 6 oz.; bleedg returned, and gain tampon.	Separated the placenta, and delivered easily by turning; she was pale and feeble, and fainting ensued, but bleeding ceased.		On 9th, *coma* came on, after excitement; she died before night.	Dead; "full of blood"	Arachnitis over cerebellum, and effusion into ventricles; both ovaries suppurated, and almost destroyed; renewal of hemorrhage on 6th; accompanied the febrile attack, and caused by it. What caused the apoplexy and ovaritis? Reaction?
ffered a very considrable loss of blood, nd, after some days, ecurred to an alarmg degree; on 11th, ampon; this expelled n 13th, and reapplied.	Bleeding suppressed by evacuating waters, but cord came down, and she was easily delivered by turning.		The same day, violent fever set in, and died on 17th, of adynamia, or putrid fever.	Alive	Lochia continued; she thinks the fever due to reaction following depression.
frightful hemorrhage efore admission on 7th; tampon, and leeding returned on s withdrawal; reinroduced.	On 30th, child expelled; putrid; womb distended by gas; bleeding for some time after delivery.		Died 2 hours after delivery.	Putrid	Pleuritis and peritonitis.
ad lost a great deal of lood during 6 weeks.	Passed the hand at once by the placenta; seized the feet with ease.	After delivery, did not lose a drop.	She grew pale; had spasmodic chills; died in ¾ of an hour after delivery.	Dead	Heart black and softened; uterus soft and flabby; blood not gone from fœtus; in these cases, it never is; versus those who believe in immediate connection of two (p. 440).
lmost uninterrupted hemorrhage during 9 lays; some pains on admission; tampon; hemorrhage arrested; returned during vomiting.	Placenta detached, and delivered by turning; simple and easy; there was much blood escaped.		Adynamic fever carried her off on 5th day.	Dead	Serum in cavities; uterine phlebitis; ovaries enlarged.
n 10th, abundant hemorrhage after admission; tampon; it caused pains slightly.	Turned, and brought down feet very slowly to dilate the os; after feet were brought down, severe convulsions.	Os distended, but not torn; bleeding continued during and after delivery; placenta adherent, and required to be removed.	Died on 16th day.	Living	Bleeding continued after delivery of placenta; succession of faintings; womb relaxed at intervals; vagina full of clots; cervix soft and open during life; tampon caused the labor; *post mortem* on next day; putrefaction.
ome hemorrhage Apr. 1; on 3d, pains came on; on 4th, a clot, followed by fluid blood.	Membranes now ruptured, and bleeding at once stopped; child expelled spontaneously; labor lasted 20 hours.	Was as comfortable as usual 5 hours after.	Respiration became embarrassed; extreme depression; died 13 hours after delivery.	Dead	Her chill before labor, vomiting, and pain in abdomen before death, were spasmodic; there was no inflammation; fœtus as in other cases.
Considerable hemorrhage came on at date, which enfeebled her; for a week, there was but little, and it then returned; tampon; this arrested bleeding, and pains came on.	Delivered, when os found dilated, by turning; bleeding continued during delivery, and afterwards.		Died 19 days after.	Living	Pleuro-pneumonia, which she thinks due to reaction from extreme collapse.
Bleeding profuse.	Turning well done.		Died suddenly, an hour after delivery.	Died	
Slight hemorrhage several weeks before, while walking across the room; lost more than a half gallon of blood next day.	Passed hand by placenta and turned.	Placenta delivered after child.	Died in 6 hrs., from exhaustion.	Dead	

TABLE I.—*Deaths after Delivery*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION AT TIME OF DELIVERY.
242	Dr. Willard Parker, N. York, communicated by.	45	Multipara		Half-way over the mouth			Pulseless.
243	Dr. Richard H. Thomas, Baltimore, communicated by.	25	Stout; 2d child		Complete	Os rigid at first, and resistant.		
244	Ibid.	40	Mother of 7 or 8		Complete			Very prostrate.
245	Ibid., occurring to his brother.							
246	Mauriceau, according to a table of Dr. Rob't Lee's, in Lancet, 1847, ii. 439; Case 170; Ann. 1676.			7th month		Os hard, thick, and little dilated.		
247	Ibid., Case 438; Ann. 1686.					Thick and hard.		Flooding and convulsions.
248	Ibid., Case 484; Ann. 1687.			8½ month	Entirely detached			Great hemorrhage.
249	Portal, according to Dr. Lee, in London Lancet, 1847, ii. 548; Case 39; Ann. 1671.				Complete			
250	Dr. Barnes, Lancet, 1847, i. 328; Case 3.	41	12th pregnancy; stout and well developed		Complete	Os found dilated after death.	Head	
251	Mr. Newnham, London Med. Gaz., Nov. 1845, pp. 125–27.		Very poor, and very wretched					

Turning, &c.—Continued.

MOUNT AND DURATION OF HEMORRHAGE BEFORE DELIVERY.	MODE OF DELIVERY.	DISPOSAL OF PLACENTA.	PERIOD OF DEATH.	FATE OF CHILD.	REMARKS.
	Stimulants given, and child expelled.	Placenta was firmly adherent; attempt to separate it; bleeding continued.	Died in 1 hour.		Placenta full of cretaceous masses, and hard.
Had lost a very large amount, and was bleeding profusely; tampon half hour.	On removing tampon, passed by placenta; turned, and delivered the hips; rest expelled; placenta followed.		Sank gradually, and died in 8 hours.	Child dead	Hemorrhage ceased on delivery.
Bleeding at intervals for 24 hours.	Attempts had been made to turn; gave stimulants; passed the hand by the placenta, and got the feet; delivery assisted by strong expulsive pains.		Died in 5 minutes after delivery.	Dead	
			Died.	Saved	
	Refused to be delivered.		Died undelivered.		
	Delivered.		Died 2 hrs. after delivery.		
	Turning.		Died in 12 days after delivery.		
Great hemorrhage for 19 days; increased during preceding 24 hours.	Would not consent to delivery when first visited; was delivered while unconscious.		Died soon.		Rallied after delivery, but sank.
Pains came on at 7 P. M. of 13th; flooding at intervals in night; died at 5.48 A. M.	Died undelivered.		Died in less than 11 hours after first of labor.	Dead	Placenta spread over ⅔ the area of the uterus.
Had suffered very much from hemorrhage.	Turning, as a forlorn hope.		Died 2 hours after turning.		

TABLE I.

Mode of Delivery—(not including cases of Artificial Separation, or Spontaneous Expulsion of the Placenta, of Tables II. and III.).

There were 200 cases of *turning.*
" " 141 recovered.
" " 59 died, or *one in three and four-tenths.*

The average mortality of cases of turning,* according to Prof. Simpson, *Lond. Lancet*, 1847, vol. ii. p. 381, is *one in two and nine-tenths.*

There were 50 cases of *spontaneous delivery.*
" " 43 recovered.
" " 7 died, or *one in seven and one-seventh.*
" " 12 cases delivered by *craniotomy.*
" " 11 recovered, cases 6, 7, 12, 17, 37, 38, 39, 57, 59, 180, and one of Dr. Lever's.
Died, case 206.

There were four delivered by *forceps;* all recovered. Cases 5, 99, 123, 124.

In Cases 10, 11, 195, delivery was "forced;" the first two recovered; the last died.

In Cases 101, 113, the fœtus was grasped and brought down; both recovered.

In four, the mode of delivery not stated; two recovered, and two died. In Cases 9 and 152, the breech was brought down. In Cases 197, 219, 221, 245, 250, the patients died undelivered.

Of a total of 236 delivered by artificial aid, 172 were saved, and 64 lost, or about one in three and seven-tenths ($3\frac{7}{10}$).

Under the head of spontaneous deliveries, are included several in which ergot was given, and others in which the membranes had been ruptured or the tampon employed.

Those delivered without manual aid (in extraction) seem to have been of a less severe character than the other class. The hemorrhage, previous to delivery, was less severe in the cases, as a whole, in which delivery was effected by the expulsive powers of the womb, than in cases that were assisted by art.

* We adopt Dr. Simpson's statement, for purposes of comparison in this paper, because based upon a much larger number of cases (421).

Degree of Hemorrhage in different classes of Cases.

Among *recoveries* after *turning*, *craniotomy*, &c., the hemorrhage, previous to delivery, was so severe as to render the danger very threatening in . . . . . 84 cases.
It was "considerable" in . . . . . 18 "
" "moderate" in . . . . . 12 "

In sixty-two of the eighty-four, the constitutional symptoms are stated as indicating great danger to life.

Among *deaths* after *turning*, *craniotomy*, &c., the hemorrhage, previous to delivery, was noted as

Very urgent in . . . . . 44 cases.
"Moderate" " . . . . . 3 "
"Considerable" in . . . . . 1 "

Of the forty-four, in thirty-four the depression was expressly noted as extreme. Of the three in which hemorrhage was "moderate," Case 187 died very unexpectedly; Case 227 was very weak and delicate, and died of fever; and Case 202 was one of partial presentation, and died at a remote period.

In Cases 192, 210, 215, 223, 226, 229, 244, the patients were apparently *in articulo mortis* at the time of delivery, and in 193, 203, 242, 251, they were apparently far advanced toward a fatal termination. It may be thought by some that such cases should be rejected in a consideration of different modes of treatment, as they all proved fatal; but a reference to Cases 13, 37, 38, 58, 60, 61, 69, 83, 90, 106, 108, 138, 143, 145, 165, 181, in which the patients recovered from a state of extreme depression, and some of whom appeared to be dying at the time of delivery, will, we think, satisfy such that the cases referred to should be retained.

Among *recoveries* after *spontaneous delivery*, the hemorrhage had been very great in . . . . . 16 cases.
"Considerable" in . . . . . 6 "
"Moderate" in . . . . . 4 "

Among *fatal cases* after *spontaneous delivery*, in Cases 201, 213, 231, 238, 242, the bleeding was very severe. In Cases 200, 230, it was apparently moderate.

If now, we compare the 84 in which the hemorrhage was "very severe," among the *recoveries* after artificial delivery, with the 12 in which it was "moderate," we find the cases of "moderate" bear to those of profuse hemorrhage the proportion of 1 in 8 of the whole.

Among the *fatal* cases after artificial delivery, the proportion of

moderate to severe hemorrhage is 3 in 47, or about 1 moderate in 16 severe.

Comparing the 16 *recoveries* after *spontaneous delivery*, in which the hemorrhage had been severe, with the four in which it had been moderate, the proportion of the latter to the former is 1 in 5 of the whole.

If we add to each group of "severe" cases, in both recoveries and deaths, those in which the hemorrhage was noted as "considerable," we get 147 compared with 15, or *one* moderate in *a little less than eleven of the whole*, in cases requiring artificial delivery; and 27 compared with 6, or *one* moderate in *five and a half* of the whole, delivered by the unaided efforts of nature. So that in either case, there is a decidedly larger proportion of mild cases among those delivered by the natural effort.

Degree of Placental Presentation in different Classes.

Among the *recoveries* after *spontaneous expulsion* of the child, we have 20 cases of *partial* presentation of the placenta, viz: Cases 4, 23, 26, 32, 36, 44, 45, 46, 55, 62, 94, 95, 102, 110, 118, 119, 159, 171, and two of Dr. Lever's; and 10 cases of *complete* presentation, viz: Cases 52, 56, 70, 84, 114, 140, 169, 170, 173, 174, or 66 per cent. *partial.*

Of the *fatal* cases of spontaneous delivery, there was

1 case *complete*,
*4 cases *partial*, or 80 per cent. *partial.*

Of the remaining cases, being *recoveries* after *artificial delivery*, there were

46 cases of *partial*,
and 84 " *complete*, or 35 per cent. *partial.*

While of *fatal* cases after *artificial delivery*, there were

12 cases *partial*,
45 " *complete*, or 60 per cent. *partial.*

These figures show that among cases of spontaneous expulsion of the child, there was a much larger proportion of *partial* presentations than among the remaining cases, and as a consequence less serious hemorrhage, and therefore a lower rate of mortality; and not, as at first sight appears, that cases let alone are better situated for a favorable termination. This affords an illustration of the need

* Of these four cases, Case 201 died on the fifteenth day of pneumonia and phlebitis; Case 230 died of hemorrhage after delivery; Case 238 ceased to bleed after rupture of the membranes; Case 242 was moribund when visited.

of a critical analysis of cases, when we seek to learn their bearings upon different modes of treatment.

Date of Death after Spontaneous and Artificial Deliveries.

1 hour and under.	3 hours and under.	6 hours and under.	12 hours and under.	24 hours and under.	
Case 185*	Case 193, p.	Case 208, m.	Case 224, p.	Case 188, p.	Case 249, p.; died soon.
" 187, m.	" 194, p.	" 209, p.	" 238, p.	" 220, p.	" 198, p.; in few days; exhaustion.
" 189, p.	" 199, p.	" 222, p.	" 243, p.		" 248, p.; 12 days; diarrhœa.
" 192, p.	" 203, p.	" 241, p.	1 complete in 7 hours.		" 184, p.; 2 weeks.
" 205, p.	" 226, p.				" 186, c.; 13 days; diarrhœa.
" 206, p.	" 229, p.				" 196, p.; 18 days.
" 207, p.	" 230, p.				" 200,† remote.
" 210, p.	" 231, p.				" 201, p.; 16 days; phlebitis.
" 211, p.	" 234, p.				" 202, p.; 10 days; phlebitis.
" 214, p.	" 247, p.				" 204, p.; remote; "
" 215, p.	" 251, p.				" 212, p.; 7th day.
" 217, p.	1 complete.				" 213, p.; 15 days; irritative fever.
" 223, p.					" 216, p.; 4th day.
" 235, p.					" 218, p.; 3d day; peritonitis.
" 240, p.					" 225, p.; few days; fever.
" 242, p.					" 227, p.; fever.
" 244, p.					" 228, p.; "
1 partial.					" 232,† 9th day; apoplexy; ovaritis, &c.
1 partial.					" 233, p.; 7th day; fever.
					" 236, p.; 5th day; "
					" 237, p.; 16th day.
					" 239,† 19th day; pneumonia.
					1 complete; 10th day; from exposure.
					1 partial; 5th day; peritonitis.
					1 " 9th day; phlebitis.
19	12	4	4	2	

* The letters following the numbers indicate the degree of hemorrhage prior to death. p. For profuse. c. For considerable. m. For moderate. † Apparently not urgent.

Of the cases in which death did not occur as an immediate consequence of loss of blood, it is impossible to say in what proportion this result was directly caused by the hemorrhage. It is doubtless a mistake to attribute the fatal result in the most of such cases, to accidental causes unconnected with the delivery. Mad. Lachapelle inquires, in regard to the inflammatory symptoms that arose in several of the cases under her care, if these were not caused by the reaction from the excessive depression into which they had sunk.

Condition of Os Uteri at time of Delivery.

Among the *recoveries*, in 22 the os was fully dilated.
" " " " 72 partially so, but yielding.
" " " " 19 " dilated, but rigid and unyielding.
" " " " 4 " " condition not stated.

Of the 22 *fully dilated*, 12 were delivered by *turning*.
" " " 8 " " " spontaneous expulsion.
" " " 1 " " " forceps.

In Case 101, the fœtus and secundines were grasped and brought down.

Of the 71 *partial* and *yielding*, 60 were delivered by turning.
" " " " 7 by spontaneous expulsion.
" " " " 3 " forceps.

In Case 113, the head was brought down by the hand.

Of the 19 in which the os was *partially dilated* and *rigid*,
6 were delivered by craniotomy.
13 " " " turning.

The four in which the os was partially dilated, but the condition not stated, were delivered by *turning*.

Of the *fatal cases*, in 17 the os was fully dilated.
" " " 13 partially dilated and yielding.
" " " 9 " " " rigid.

Of the 17 *fully dilated*, 16 were delivered by turning.
" " " 1 was " spontaneous expulsion.

Of 13 *partially dilated* and *yielding*,
12 were delivered by turning.
1 was " spontaneous expulsion.

Of 9 *partially dilated* and *rigid*,
1 was delivered by perforation.
7 were " turning.
1 was "forced."

A comparison of the 17 fatal cases, with the 22 recoveries, when the *os is fully dilated*, exhibits the evil effects of delaying delivery too long, or until the womb has become fully dilated. Of the 17 fatal cases, it will be observed that turning was performed in 16, and in one there was natural delivery; of the 22 that recovered, 8 were spontaneously expelled, and 14 delivered by manual aid. Now the total deaths in Table I. are few, compared with the total recoveries, while the deaths with a fully dilated os outnumber the recoveries with the same condition of the os; throwing out the spontaneous deliveries in each, which, we have already seen, bear a larger proportion among recoveries, and for reasons which we have shown. In other words, of cases of complete placental presentation allowed to remain undelivered until the os uteri is fully dilated, more will die than recover, though of cases delivered at a proper time, the reverse is true; for of the *eight* cases of *spontaneous expulsion* with a *fully dilated os*, that recovered, *six*, viz: Cases 26, 110, 118, 149, 152, 171, were noted as *partial* presentations. Case 164 was apparently partial, and Case 170, though noted as complete, was of a mild character, there being no constitutional symptoms indicating great loss of blood.

The importance of delivery in placental presentations, so soon as the state of the os uteri will permit of the introduction of the hand, cannot be too strongly urged. That eminent practitioner, Dr. Valentine Mott, in a communication with which he has favored us, says: "I have seen, and been engaged in a number of cases of placenta prævia in the course of my long practice. In every case in which there was interference at a sufficiently early period, the mother has been always saved, and, with few exceptions, the child also.

"It is impossible for any one but an experienced practitioner, to know at what time we are to interfere. General directions can be given, as in cases of hernia, but they must be seen to be judged of correctly. Most of the cases fatal to the mother arise from not being seen soon enough, or delay on the part of the practitioner. I have known a number of instances in which both mother and child have been lost from delay; and quite lately, a case occurred in this city, in which both mother and child were lost. The practitioner was urged by two others not to put off the delivery, but he did until the mother was too far exhausted. My plan has been to pass the hand by the side of the placenta rather than go through it."

Dr. D. Brainard, of Chicago, writes us: "I remember several cases of placental presentation, at least where the edge was felt, but none where the centre presented. I have never used Prof. Simpson's method, but adhere to the old practice, and have had no death occur from hemorrhage, although I have known one to occur in the practice of a neighbor. I saw the case, and believe death to have occurred from leaving it too long before inducing labor."

These views are abundantly sustained by the cases we have presented. It might be invidious to point them out individually, but there are several here recorded, in which it is painfully evident that the patient was suffered to perish from unnecessary delay on the part of the medical attendant, the os uteri being *dilatable*, but not largely dilated.

The patient's prospects of recovery are materially affected by the condition of the os uteri during delivery; and its imperfect dilatation under certain circumstances, is the chief condition for which the artificial separation of the placenta has been recommended in place of delivery by forced dilatation. It would seem that we might safely assume, that delivery effected by a forcible dilatation of a rigid and unyielding os uteri, must expose a patient to greatly increased risks. There is no branch of the subject involved in so much difficulty as the proper mode of procedure in

such cases. The rule to deliver as soon as the os will permit, is well established; but in some cases, as will be seen by a reference to the table, most alarming hemorrhage has come on when the os has been even apparently closed, or just admitted the tip of the forefinger, the placenta completely covering the internal surface of the lower segment of the womb. In other cases, the cervix is found thick, rigid, and undilatable, but partially open, and the blood streaming forth in rapid flow. The practice, in these cases, has been to dilate the cervix by a gradual but forcible introduction of the hand, and removal of the child. The difficulties attending such a procedure must be evident enough from reading the details of some of the cases delivered in this manner; and one cannot leave the perusal of their histories without increased admiration of the recuperative powers of Nature which alone could sustain a patient under so great an accumulation of evils.

Dr. Rigby, in his *Essay*, pp. 38, 40, 47, urges the necessity of waiting until the uterus is in a state *capable* of *dilatation*, not waiting, however, for its actual open condition; and thus in Cases 83 and 89, though the os was apparently closed, or nearly so, he effected delivery with safety, because the os was dilatable. He had seen in the practice of others, the evil effects of undertaking the operation before the parts should be prepared; and even if contractions of the neck come on during delivery, opposing an obstacle to the mechanical dilatation, he advises the practitioner to wait "until the parts become relaxed by pains or discharges" (p. 41), watching the patient continually.

Dr. Lee, in his *Lectures*, p. 373, says: "There is not unfrequently most profuse and alarming flooding from complete presentation, where the os uteri is so thick, rigid, and undilatable, that it is impossible to introduce the hand into the uterus without producing certain mischief. In 13 out of the 36 cases contained in the following table, the os uteri was rigid and undilatable. The tampon, or plug, has no power to restrain the hemorrhage in such cases, nor do I know of any other means—either cold, quietness, or opium—which effectually have; and it is sometimes absolutely necessary, under such circumstances, to deliver by turning, before the hand can possibly be introduced into the uterus without producing fatal contusion, or laceration of the parts."

Dr. Dewees, in the journal referred to, directs when the os is little open and rigid, to use the tampon. The forced dilatation of the os, he characterizes as an "outrageous practice;" and he says,

"it must not, therefore, be thought of, however high the authority may be that recommends it." "The indications," he says, "as far as we have witnessed for the last 30 years, are readily met by the use of the tampon and other auxiliary remedies." "It is true Gardien thinks the plug will do harm by exciting the uterus, and thus increasing the separation of the placenta; but this is theory; it is not consonant with experience." He recommends a similar practice when the os uteri is partially dilated and rigid.

Dr. Collins's cases, 34, which died, and 50, which recovered, are instances of the difficulties and dangers of forced delivery; and Dr. Collins, at p. 53, Amer. edit., refers to Ramsbotham's cases, 139, 140, 141, 142, 144, 145, 149, as further illustrations of the evils attending it.

Dr. W. H. Crowfoot, in some very judicious remarks in the *Prov. Med. and Surg. Journ.*, 1845, p. 674, says: "Of the 14 cases of complete placental presentation, to which I have been called, in my own private practice, or in consultation with other practitioners, 11 were delivered by turning, as soon as the os uteri had become dilated to the size of a shilling, and was found dilatable. Of these 11 cases, not one mother was lost. The 12th was early delivered by a very careful and experienced practitioner, but the mother subsequently died of hysteritis. The 13th and 14th I did not see till the labors were far advanced, and the patients almost exsanguined: both were delivered; both, with the child, perished." He insists that the safety of the patient depends, in a great measure, on the very gentle and gradual manner in which the operation is performed, particularly the first steps of it. If the practitioner go to work slowly, he will succeed; if under the influence of alarm, or of an undue haste to get over a troublesome case, he should use undue violence, the consequences will be disastrous.

Dr. Ashwell, in *Lond. Med. Gaz.*, 1845, p. 1197, in opposing the plan of treatment recommended by Dr. Simpson, asks if the placenta can be separated from the "developed, and highly vascular cervix," without risk, why may not one finger, used as a dilator, make way for the introduction of a second, and a third, and eventually of the whole hand, for the purposes of turning? "I have often commenced the process of dilatation when the ring of the os uteri has seemed as hard and as rigid as cartilage, and yet, in no instance, have I failed, and generally, in a moderate time, to accomplish a full and safe dilatation, thus affording to the child at least, and, as I think, to the mother also, a higher chance of life, and greater immunity from danger."

But "Mauriceau remarked," says Perfect, "that when the orifice of the womb was soft, and thin, and equal, the patient generally recovered; but if the contrary, she often died." This was in cases at the sixth and seventh month. "Peu is of the same opinion, and pronounces death, from his own experience, when violent force is in such cases employed to dilate the os uteri."

Naegelé mentions cases of placenta prævia in which the child was turned and delivered with perfect safety, but a constant dribbling of blood persisted after labor, resisting all efforts to check it, and on *post-mortem* examination, "he invariably found the os uteri more or less torn." (See *Dr. Murphy's Lectures.*)

We have experienced considerable embarrassment in classifying cases under this head. The natural division seems to be into, 1, those fully dilated; 2, those partially dilated, but easily dilatable, and 3, the partially dilated, but rigid and undilatable. But there are cases, about the location of which we have some doubts. Thus, in Case 61, the os was yet closed when delivery was commenced, but Dr. Rigby, by gradual dilatation, safely overcame the difficulty and successfully delivered the patient. In Case 105, there had been a great deal of blood lost, the os was a "little open," and Smellie advised the doctor to dilate gently during each pain. He did so, and after a few pains the child was expelled. The difficulty is, in distinguishing between different degrees of rigidity in different cases; a certain, or even a considerable degree of rigidty not being inconsistent with dilatability. Others will probably, in some instances, group them differently from what we have done.

Dr. Lee, as quoted above, speaks of 13 out of the 36 cases in his *Lectures* being complicated with rigidity of the os; but this enumeration evidently includes those in which it was at first rigid, but afterwards became dilated. Dr. Simpson (*London Lancet*, 1847, vol. ii.) says that of *eleven* cases of placenta prævia reported by Dr. Lee, in his *Clinical Midwifery*, and in which there was more or less rigidity of the os, with dangerous hemorrhage, *eight* of the mothers died, or 72 per cent. After a careful examination of the 36 cases* of placenta prævia, we find but *five* cases in which death occurred,

* Of those *saved*, the os was *rigid* in Nos. 267, 268, 284, 287, 291, and 296—total, 6; *dilatable* in Nos. 264, 273, 275, 278, 279, 293, and 294—total, 7. Nos. 270, 286, and 292, spontaneously expelled.

Of those *lost*, the os was *rigid* in Nos. 260, 271, 282, 283, and 285—total, 5; *dilatable* in Nos. 266, 276, 289, and 295—total, 4. Nos. 272 and 274, spontaneously expelled. No. 261, undelivered. No. 269, child drawn forth. In the remainder, condition of os not stated.

the os being rigid *at the time of delivery*, and *six* cases of recovery under the same condition. The influence of a rigid os uteri in delaying the undertaking of delivery, we will consider by itself.

Among the *recoveries* in Table I., the cases in which the os uteri was *rigid* and *partially dilated* are—

Case	6,	perforation;	delivery difficult.
"	16,	turning;	" "
"	17,	perforation;	" "
"	27,	turning;	" "
"	37,	perforation;	attempts to turn had failed.
"	38,	"	delivery difficult.
"	39,	"	" "
"	40,	turning;	" "
"	58,	"	" "
"	59,	perforation;	" "
"	83,	turning;	forced the fingers, &c.
"	147,	"	difficult.—Total difficult, 12.
"	25,	"	easy.
"	28,	"	"
"	33,	"	not very difficult.
"	61,	"	" " "
"	108,	"	not difficult.
"	153,	"	admitted the hand.
"	158,	"	apparently not difficult.—Total easy, 7.

Total of recoveries with rigidity of os, 19.

Among the *fatal* cases in which the os was *rigid*, in

Case	195,	labor was "forced."	
"	199,	turning;	delivery difficult.
"	205,	"	" very difficult.
"	206,	perforation;	" " "
"	207,	turning;	" " " laceration of cervix.
"	247,	"	os thick and hard; died in two hours.

Total in which labor was unusually difficult, 6.

Case	196,	turning;	not much difficulty.
"	217,	"	some difficulty.
"	222,	"	apparently not difficult.

Total in which delivery was apparently not difficult, 3; total deaths with rigidity of os uteri, 9; mortality of 1 in 3¼.

Taking these as a whole, we do not find the preponderance of fatal cases which we might expect, owing, perhaps, to the difficulties of classification which we have referred to. Of the 19 recoveries,

13 were delivered by *turning;* of the 9 deaths, 8 were delivered by *turning.* Of the *seven* cases delivered by *perforation*, only *one* was lost. This shows plainly that diminishing the size of the head, when the os uteri will not allow its ready passage, is a safer process than to attempt to practise artificial dilatation, and deliver by force; and it accounts for the comparatively low mortality just stated. In fact, of the total of the cases delivered by perforation in Table I., twelve in number, *one only was lost.* The proportion of *nine* deaths to *thirteen* recoveries after *turning*, or one in two and four-tenths (1 in 2.4), may doubtless be received as a near approximation to the true proportion of losses under the complication we are considering, inasmuch as it gives a considerably higher rate of mortality than the general mortality of placenta prævia, and is in striking contrast with the results following perforation; though in many cases of delivery by this latter means, the labor is characterized as difficult. If it be objected that these numbers are too small to afford any reliable data, we answer that the number of cases in which rigidity of the os uteri seriously embarrasses delivery is small, compared with the whole number of cases of placenta prævia that are met with in practice.

Furthermore, it is very clear that a rigid condition of the os uteri was, in many instances in the table, the cause of death, from the delay in undertaking delivery to which it gives rise; the hemorrhage continuing, notwithstanding efforts to control it. We cannot doubt, as we have already remarked, that patients are sometimes lost by the inefficiency of their medical attendants; but so long as the condition of the os uteri will not allow of delivery without the exercise of a degree of force which the accoucheur deems imprudent, he is compelled to content himself with the adoption of means which may but partially prevent the loss of blood. It is doubtless true that in many fatal cases the hemorrhage is allowed for this reason to continue, perhaps imperfectly checked, the patient's general condition not exciting serious alarm, but the strength of the vital powers nevertheless diminishing, until, when at last delivery is effected, she sinks from exhaustion. Hence, in its relations to the various conditions which affect it, as the period of pregnancy, the number of the pregnancy, and the stage of labor, the condition of the os is connected more intimately than any other single circumstance with the result to the patient.

The chief expedients that have been resorted to for restraining hemorrhage until the os becomes sufficiently dilated to permit de-

livery, are—1st, rupture of the membranes; 2d, the introduction of the plug; 3d, administration of ergot.

Mauriceau, in 1682, introduced the practice of *rupturing the membranes* in hemorrhage before delivery, with the hope of securing increased contractions of the womb. Its employment in unavoidable hemorrhage has been, for the most part, limited to cases of partial presentation of the placenta, because of the difficulty in reaching the membranes when the os is completely covered by the placenta.

Among *recoveries*, in 17 it is stated that the membranes were ruptured; of these, 12 were partial presentations—Cases 19, 23, 26, 32, 36, 39, 94, 95, 99, 149, 159, 173; 3 were complete—Cases 123, 170, 174; two not stated. In most of these, delivery took place by natural efforts. In Cases 39 and 99, both partial, the bleeding continued after the membranes were ruptured. In Case 123, complete, the hemorrhage was arrested until next day, when she was delivered by forceps. In Cases 170 and 174, both complete, strong pains came on and expelled the child. Among the *deaths*, in Case 189, complete, the patient was in a very alarming condition, and prostration was increased after rupture of the membranes. In Case 206, complete, hemorrhage ceased for a while, but returned; craniotomy was performed. In Case 217, complete, the hemorrhage seems to have ceased, but there was great prostration. In Case 219, nearly complete, very alarming prostration; pains followed rupture of the membranes; ergot and stimulants given, but she died undelivered. Cases 200 and 201, both partial, died at a remote period. These results accord with what we believe to be general experience, that, in most cases of partial presentation, it is the only interference required, and that a large proportion of such cases will be delivered by natural effort; but that in complete presentation it is not easily practised, and, when resorted to, is not to be relied on as a means of checking hemorrhage. Some, however, have little confidence in the efficacy of this expedient. Dewees is opposed to it on account of the difficulty of its performance, and the risk of increasing the hemorrhage by separation of the placenta; because, where the waters are evacuated, "it will very rarely stop the hemorrhage," and because of the embarrassment it may cause to delivery, in case of version becoming necessary. He says: "Baudelocque assures us he never saw but one case where the hemorrhage ceased after the discharge of the waters."

The employment of *ergot* is noted in but few of our cases, and mostly without any distinct statement as to its effects. In most

instances, it was resorted to in connection with rupture of the membranes or turning, in order to insure more efficient contractions of the womb. Thus, in Case 36, partial, the membranes were ruptured, ergot given, and spontaneous expulsion followed. In Cases 110, partial, and 169, complete, both the pains were inefficient; ergot was given, and spontaneous expulsion took place. In Case 171, partial, ergot was given, and alone sufficed to insure delivery. In Case 21, p. 278 of Lee's *Clinical Midwifery*, it is said that "pain followed the ergot, and a great increase of discharge." This is the only instance in which any unfavorable result is spoken of. Dr. Lee, in connection with this case, says (page 154): "Ergot should never be given in hemorrhage till the fact is determined that the placenta is not attached to the neck of the uterus. It can do no good in presentations of the placenta." Again, of his 35 cases, he says (p. 164): "The tampon, or plug, was not beneficial in any of them, and the ergot did positive injury."

Dr. F. Ramsbotham, on the other hand, speaking of cases of great prostration, says: "In most cases, we shall find the ergot a serviceable remedy after the stimuli have taken effect, and before the operation is proceeded with. A dose or two of this medicine, indeed, may be given in every instance of placental presentation, previously to the delivery being undertaken, if time admit of its exhibition."

The failure of ergot to increase the uterine contractions is doubtless owing, in many instances, to a neglect of the hint afforded in the above extract, viz: to give it after the stimuli have taken effect. This point of practice, which we believe is not generally understood, is very clearly set forth by Dr. Murphy in his *Lectures on Midwifery*, London edit., 1852. He says: "Ergot is often *misused;* it is given as a specific, when it is impossible such an effect is produced; the nervous system must be capable of conveying the necessary impressions. Ergot is quite insufficient in nervous exhaustion of the uterus, because so far from acting as a stimulant, it produces a sedative effect on the heart. Opium is, therefore, of the highest value in saving the patient from the consequences of extreme flooding—ergot in preventing such hemorrhages."

There is another point deserving of consideration—the value of ergot in cases of rigidity of the os. In ordinary labors, an undilated os would contra-indicate its employment. In cases of complete placental presentation, however, hemorrhage is almost uniformly sufficient to materially impair the patient's strength and render the uterus atonic; consequently there can be no danger of injury from contractions induced by ergot. The question is, will

ergot in such cases give tone to the uterine muscles, and favor the dilatation of the os? Dr. Murphy seems to allude to the administration of ergot with this intent, while treating of the management of placenta prævia, with rigidity of the os, he recommends rupture of the membranes, plugging, ergot and opium, as available.

Dr. James Fountain, of Peekskill, N. Y., a practitioner of over forty years' standing, in a communication, states that for the first twenty years of his practice he delivered nearly one hundred women annually, and in the course of his practice, has had not over *twelve* cases of misplaced placenta; all except three or four were partially over the os uteri; in two cases it seemed placed very centrally. In every case excepting these two, he found the os sufficiently dilated to admit of the introduction of the hand. In the other two cases, the os uteri was "so firm, thick, and unyielding, that I deemed it not best to introduce the hand, but to arrest the flooding till the os was in a more favorable condition. In both cases, and, I presume, in all such, the hemorrhage ceased during the pains, except just at their commencement. To secure a *constant pressure* on the placenta, and thereby to stop the flow mechanically, I gave a full dose of *ergot.* It always produces one constant, pressing pain, you know. The effect lasted about half an hour; then the hemorrhage began to return, but I had gained on the os; so, to secure a further relaxation, I repeated the ergot, and with the same success. At the end of another half hour, I found the os so far dilated, that I concluded to proceed. I bored my hand quickly through the placenta, turned the child, and as my hand came down, I detached the placenta and quickly brought all away together. Success was complete —both children were living. I published a history of these cases, I believe in the *American Journal* of Philadelphia. I believe the idea was purely my own. I never lost a case from hemorrhage." Dr. Fountain saw two die; these were not his patients, and were *in articulo mortis* when he reached them.

The two cases here related are suggestive of the inquiry, if a more frequent resort to the ergot, with a view, as in these cases, of restraining hemorrhage while the process of dilatation is going on, might not often be attended with success.

Dr. Isaac E. Taylor, of New York City, having seen two cases in which the placenta was entirely expelled before the birth of the child, and another in which the separation of the placenta was almost complete, has made a similar suggestion as regards the use of ergot, to that put in practice by Dr. Fountain. In a letter with which Dr. Taylor has obligingly favored us, he says: "I even think

that if a case of placenta prævia should present itself to me again, and the os uteri only opened to the size of a sixpence or a shilling, I could discover the head to be certainly present, I would either give the secale cornutum in small doses every fifteen or twenty minutes, to increase the strength of the pains if they were feeble; or, if active, and the hemorrhage continuing, endeavor to puncture the membranes through the placenta, let off the liquor amnii, and then give the secale cornutum. In this manner, trying to act, as near as possible, to the course nature unaided adopts, as we see in spontaneous separation; allowing the head to be the tampon to the vessels." In Case 182, the ergot seems to have been given with this intent.

In *twenty eight* cases only, is the use of the *tampon* noted. It appears to have been resorted to chiefly in cases of *complete* presentation, of which there were 15, and in but 3 partial; in the remaining ten, the degree of the presentation is not stated. In five, the effect in suppressing hemorrhage is not stated. In Cases 1, 40, 92, 115, 213, 218, 231, 232, 234, 236, 237, 239, 297, total thirteen, hemorrhage was suppressed for a longer or shorter time, generally for several hours. In Cases 100, 169, 174, 183, 237, pains came on after its introduction. Case 174 was apparently dead when the plug was introduced; stimulants were given, and as pains returned, the membranes were ruptured, and the child expelled by natural efforts. In Case 96, and in another reported by Mad. Lachapelle, in which the placenta was separated spontaneously before the birth of the child, the pains and the hemorrhage were increased by the tampon. In Cases 196, 218, hemorrhage came on while the tampon was in the vagina. In Case 218 the tampon was saturated, and a copious flow from the vagina ensued, after bleeding had been once arrested. Of the fifteen *complete* cases there were *nine* recoveries and *five* deaths—Case 213, fatal, was apparently complete. Of these six, viz: Cases 196, 213, 218, 231, 236, 239, Case 231 is the only one that seems to have died from the immediate effects of loss of blood, as will be seen by the table of the periods at which death occurred. Cases 232 and 237 were partial; the first died on the 9th day of apoplexy, ovaritis, &c., and the second died on the 16th day. Case 234 died under three hours, but whether this was partial or complete is not stated.

These cases show plainly that the tampon is a very precious resource, in cases of complete placental presentation, in restraining hemorrhage, while the os is undergoing the softening process. From the small number of cases in which its employment is noted, it

would appear that it is resorted to much less frequently than its importance deserves. This doubtless is owing, in no small degree, to the circumstance that its use has been discouraged by some eminent authorities, the opinion of one of whom, we have already given, as to its value. In only *five* of the twenty-eight cases is the occurrence of pain after the introduction of the tampon noted. If this afford anything like the proportion of cases in which pains are likely to follow, it is evident that the principal objection to its employment in any case loses much of its force. But this can be no objection in any but cases of hemorrhage in the earlier months, when it will be prudent to abstain from its employment, until the failure of other means to restrain the flow of blood indicates the impossibility of conducting the case to the full time. Again, in cases in which it has failed to arrest hemorrhage, it is worthy of consideration if this be not owing to the imperfect manner in which the introduction of the tampon is effected.

Cases 114, 115, 116, 117, are reported by Mr. Radford as illustrative of the fact that the placenta undergoes alterations if the child dies previous to delivery; and that the hemorrhage in consequence ceases, and does not return when labor comes on. In two of these, the presentation was complete, and in two not stated, and in neither was there any hemorrhage at delivery. The plug was employed in each, and with other means suppressed the hemorrhage in the early months, and after this the motions of the child were not again felt.

Fate of the Child.

Among the *recoveries* by the mother, in Table I., in which the fate of the child is noted, in 46 cases the child was *living*, and in 61, or 57 per cent., it was *dead*. Among the *deaths* of the mother, in 10 the child was *living*, and in 23, or 70 per cent., *dead*, affording a total of 56 living, and 84 lost. The eleven cases among the recoveries and the five among the deaths, in which the child had been a long time dead, are not included, as they are not to be considered in comparing the influence of different modes of treatment upon the life of the child.

Adding to these cases those in Dr. Lever's table, and incorporating them in the table below, we have a total of *seventy-four* children saved and *ninety-nine* lost. If we add to these the results of Dr. Merriman's experience, viz: 22 children saved and 67 lost, we get a total of *ninety-six* saved, and *one hundred and sixty-six* lost, or 1 in 2.7 of the whole saved.

Table showing Age of Children at Delivery.

MOTHERS RECOVERED.													
CHILD LIVING.								CHILD DEAD.					
6th month.	7th month.	7½ month.	8th month.	8½ month.	End of 8th month.	9th month.	Full time.	7th month.	7½ month.	8th month.	8½ month.	9th month.	Full time.
Case 21 " 128	Case 88, c.? " 137, " 169, c. 1, p. 1, p. 1, p.	Case 95, p.	Case 5, p. " 20, " 30, c. " 111, c. " 118, " 154, c. 1, c. 1, c. 1, p. 1, p. 1, p.	1, p. 1, p. 1, c. 1, p.	Case 89, c.? " 99, " 105, " 153, c.	Case 23, " 67, p. " 125, c. 1, p. 1, c. 1, c.	Case 3, " 4, p. " 9, p. " 64, c. " 73, c. " 85, c. " 124, " 163, p. " 183, (a) c. " 183, (b) c.	Case 93, " 101, 1, p.	Case 92, c. " 163, c. " 149, p. " 159, p. " 181, c. 1, p.	Case 15, p. " 17, " 34, c. " 37, p. " 38, p. " 39, p. " 63, c. " 91, c. " 94, p. " 100, " 131, " 148, c. " 174, 1, p. 1, p. 1, c. 1, p. 1, c.	1, c. 1, c. 1, c.	Case 43, c. " 98, 1, c. 1, p.	Case 2, p. " 6, p. " 7, p. " 66, c. " 71, c. " 109, " 157, c. " 160, c. " 166, c. " 170, c. " 172, c. " 178, c.
2	6	1	11	4	4	6	10	3	6	18	3	4	12
MOTHERS LOST.													
	Case 198, c. " 238, p.		Case 203, p. " 239, c. 1, c. 1, p. 1, p.		Case 237, p.		Case 193, c. " 194, c.	Case 202, p.	Case 206, c. " 230, p. " 236, c.	Case 217, c. " 218, c. " 232, p.	1, c. 1, c. 1, p. 1, p.	Case 235, c.	Case 187, " 190, c. " 219, " 230, p. " 241, c.
	2		5		1		2	1	3	3	4	1	5
Total 2	8	1	16	4	5	6	12	4	8	21	7	5	17

c. Complete presentations. p. Partial ditto.

This table does not include children long dead.

From this table we learn that there were—

From 6th to 7th month,	inclusive,	10	living,	4	dead,	total,	14.
" 7th " 8th	"	17	"	30	"	47.
" 8th " 9th	"	9	"	7	"	16.
" 9th " full time	"	18	"	22	"	40.

The proportion of living to dead children, in births previous to ninth month, is about the same as those occurring at full time; but it will be seen that from the sixth to the seventh month, there are *ten* living and *four* lost; which can scarcely be the proportion of children saved at that early period.

Management of the Placenta.

Of complete presentations of the placenta in which the fate of the *child* is noted, and turning performed, it was perforated by the hand in 17—8 *children* living, 9 dead.

In 1 it was lacerated in delivery—1 living, 0 dead.

In 27 it was partially separated, and the hand passed by—9 living 20 dead.

In 29 apparently, treated in same way—10 living, 19 dead.

Separation of the placenta to a degree sufficient to admit the hand, has been almost universally recommended by authors, on the ground of the difficulty attending perforation by the hand, and increased risk to the child from laceration of the bloodvessels of the placenta. Dr. Rigby, p. 60, recommends perforation when the placenta entirely covers the mouth of the womb, on the ground of avoiding an increased separation of the placenta. General experience is in favor of separation to the extent required for the introduction of the hand for the purpose of turning. If, however, as in some of our cases, this separation is very difficult, or even impracticable, it is satisfactory to know that the risk to the child is not materially increased by such a step, if we may rely upon the above data.

TABLE II.—*Spontaneous*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION
232	Wm. Harding, Lond. Lancet, 1845, ii. 575.			8th month			Foot	Fainted and falle
233	R. A. Cory, London Lancet, 1845, ii. 629.			Presumed full		Fully dilated.	Arm	
234	Dr. Waller, London Lancet, 1846, i. 304.						Arm	
235	Ibid.							
256	J. J. Tweed, London Lancet, 1846, i. 9.	22	2d pregnancy; had 1 miscarriage	7th month		Size of crown piece when placenta found detached.	Head	
257	Mr. T. Lloyd, Lond. Lancet, ii. 515.	50	16th pregnancy	Full time			Abdomen	
258	S. R. Goddard, Lond. Lancet, 1845, ii. 645.		2d pregnancy	7th month	Partial	Partially dilated, when placenta partially protruded.	Funis, both arms, and legs	Pains, accompanied by slight hemorrhage.
259	Mr. Tennent, from Lond. and Edinb. Journal, 1845, in Prov. Medical and Surgical Journal, 1845, p. 472.	42	14th pregnancy	7th month	Complete	Dilated.	Head	Hemorrhage controlled by treatment.
260	J. S. Barker, Prov. Med. and Surgical Journ., 1845, p. 591.		2d pregnancy				Arm	Pains came on 4 hr before arrival; faint and weak small, quick pulse
261	Edward Ray, Prov. Med. and Surgical Journ., 1848, p. 124.	27	2d pregnancy	7th month; twins	Bulging through the os	Os dilated; uterus firm.	Foot of first child; head of second	Blanched, cold, almost pulseless, unconscious, no bleeding.
262	Mr. John Chapman, Duncan's Annals, iv. 308.		4th child	8th month		At 9 P. M., os size of a crown piece.	Head	Pains came on at P. M., very strong edge of placenta protruding, more and more detached every pain.
263	Dr. Collins, Case 92.	30	6th labor	Full time			Foot	Admitted in a state of great debility, pulse scarcely to be counted.
264	Dr. Waller, Braithwaite's Ret., from Med Times, 1845, p. 233; Case 5.			6th to 7th month	Nearly complete		Cross birth	Hemorrhage trifling, uterus firmly contracted around the child.
265	Ibid., Case 6.							

paration and Expulsion.

DURATION AND DEGREE OF HEMORRHAGE PREVIOUS TO SEPARATION OF PLACENTA.	DISPOSAL OF PLACENTA.	MODE OF DELIVERY.	TIME BETWEEN ITS SEPARATION OR EXPULSION AND BIRTH OF CHILD.	HEMORRHAGE AFTER SEPARATION OR EXTRACTION.	FATE OF MOTHER.	FATE OF CHILD.
great discharge, nd she felt faint.	Found in vagina.	"Natural pains, and gentle means."	Over half an hour.	None.	Presumed recovered	Not stated.
	Found in vagina, and removed.	Version and evisceration of dead fœtus.		When found, scarcely any attendant hemorrhage.	Recovered	Dead.
	"Came away."		5 hours.	None.	Recovered	Not stated.
	"Came away before the child."				Recovered	Not stated.
ofuse hemorhage, increased t each pain; controlled by plug.	2 hours after plugging, it was found detached, and in 2 hours more it was expelled.	Aided by ergot.	1½ hours after expulsion.	Almost entirely ceased, when placenta found detached, and ceased after its expulsion.	Recovered	Dead.
	Placental mass, weighing 4 lbs., found in the vagina.	Spontaneous evolution under a powerful pain.		None when found.	Recovered	Putrid.
emorrhage for ver 7 hrs. before lacenta found rotruding.	Separated spontaneously, and eventually expelled.	Expelled under strong pains.	Several hours after separation.	Entirely ceased on expulsion of placenta.	Recovered	Dead.
peated profuse emor'ges some ays before labor.	Placenta expelled spontaneously.	Child followed the placenta.	10 minutes from expulsion of placenta to birth of child.	No post-partum hemorrhage.	Recovered	Dead for some days.
emorrhage at inervals during 2 eeks; came on vith the pains, nd lasted 1 hour.	Found in vagina.	Turning.	Less than 4 hours.	No hemor'age after placenta was found.	Recovered	Not stated.
mmense hemorhage, continuing fter expulsion of irst child, the placenta remaining.	Double placenta expelled with the waters of the second child, previous to its birth.	Membranes ruptured; foot of first child brought down; slight pains came on; "child delivered;" second bag of membranes ruptured; placenta expelled spontaneously.	3 hours.	After expulsion of placenta, no hemorrhage to birth of child; during 2 hours, there were no pains; child born at end of third hour.	Tedious recovery; hemor'age from deficient contractions	Both dead.
emorrhage not larming; "from ts first protrusion hrough the os, to ts complete expulsion through he os externus, ost little more blood than in ommon labor."	Nearly 3 hours from its first protrusion to its final expulsion.	On expulsion of placenta, pains ceased; in 2 hrs., attempted version; failed; tinct. opii; natural expulsion soon afterwards; no hemorrhage.	Full 4 hours.	"Lost *little* or no blood."	Recovered	Not stated.
embranes had uptured a fortight before; since which, till the previous evening, here was more or ess hemorrhage.	Placenta had been expelled the evening before, and separated by the midwife.	Foot in vagina, and putrid; child extracted.		No hemor'age after *delivery*.	Recovered and left on 13th day	Putrid.
abor was slow; after escape of waers, there was a sudden, rather profuse gush of blood.	Expelled.	Child doubled up; soon followed the placenta.	Soon.	"There was no hemor'age."	Recovered	Long dead.
			1½ hours.	No circulation through placenta, and hence no bleeding.	Recovered	Long dead.

TABLE II.—*Spontaneous Separati*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITI
266	Smellie, collection 18, No. 3, Case 5, ii. 273.		Multipara			Os largely open.		
267	Ibid., Case 6.		2d pregnancy	End of 8th month			Head	
268	Ibid., Case 7.			Premature				
269	Mad. Lachapelle, ii. 461.	40		Middle of 9th month		Not open on admission, to allow of turning; in 1 hour after tampon, it permitted delivery.		Had some lab pains; renewed tampon.
270	Mauriceau, Case 502, according to Dr. Lee's table in Lond. Lancet, 1847, ii. 439.			8th month				
271	Ibid., Case 651.			6th month				
272	Ibid., Case 484.			8th month				
273	R. Bayard, by Prof. Anderson, in New York Med. Journ., i. 463.		Multipara; frequent miscarriages at 4 months			Finger assisted dilatation of os.		Was faint; pu quick and fa occasional sligh pains; plugged; in hours, pains i creased.
274	Communicated by Dr. Wm. Boling, Montgomery, Ala.	44	Robust negro; 20th child	Full period			Arm and funis	At 12 M., pains ha not been sever much prostrated b bleeding after del very.
275	Communicated by Dr. Isaac E. Taylor, New York.				Complete			Labor lasted a fe hours; pains activ throughout.
276	Ibid.							This case similar t the first.
277	Lee's Lectures, Case 10.			7th month	Placenta protruding			
278	Mr. Cripps, reported by Dr. Simpson, in London Med. Gaz., xxxvi. 1011.			Early part of last month			Arm	Pains very severe a drachm of lauda num given to quie them.

l Expulsion—Continued.

URATION AND DEGREE OF HEMORRHAGE PREVIOUS TO SEPARATION OF PLACENTA.	DISPOSAL OF PLACENTA.	MODE OF DELIVERY.	TIME BETWEEN ITS SEPARATION OR EXPULSION AND BIRTH OF CHILD.	HEMORRHAGE AFTER SEPARATION OR EXTRACTION.	FATE OF MOTHER.	FATE OF CHILD.
oding, at beginning of 9th month, r several days; 8 or 9 days, increased discharge me on.	Found pushing through os externum.	Child immediately followed placenta.			Recovered	Living.
	Expelled by a pain; much lacerated.	After escape of waters, the bleeding stopped; midwife, feeling a fleshy substance come down, tried to pull it away, causing increased hemorrhage.			Recovered	Dead.
nsiderable hemorrhage.	Found in the vagina, and expelled with the membranes entire.	Expelled in the bag of membranes.			Recovered	
dden great flooding; on admission, ad been bleeding days.	Entirely separated before delivery; it *followed* child.	Turning.			Recovered	Dead.
	Entirely separated from os uteri.	Turning.			Recovered	
looding.	Entire detachment of placenta.				Recovered	Dead.
reat hemorrhage.	Presenting, and entirely detached.	Turning.			Death in 12 days, from diarrhœa	
ame on in 4th month; plug, &c.; renewed in 7 or 8 weeks; had lost much blood.	Part of placenta protruded; the whole at length expelled.	Fœtus followed in a few minutes.		Ceased after delivery.	Recovered	Dead.
Was taken in labor at 1 A. M., with considerable hemorrhage and discharge of waters.	At 1 P. M., placenta found floating in a pool of blood in bed.	Morphine given preparatory to turning; pains increased, and, in 45 minutes, delivered by spontaneous evolution.	45 minutes.	At 1 P. M., hemorrhage, which had been profuse but a few moments before, *ceased entirely*, and did not return.	Recovered favorably	Dead.
Labor came on suddenly, having had slight bleeding for a few hours previous; the loss of blood was "startling," and it was still flowing.	In a half hour, it was discovered coming through the vagina.	Child immediately followed the placenta.		In both these cases, hemorrhage ceased from being very active, so much so as to quiet my mind respecting the welfare of the patient.	Recovered Recovered	Dead. Living.
Profuse hemorrhage.	Traction made on placenta, and the contents of the uterus expelled entire.	Expelled.			Recovered	
Occasional; slight for a week previous; severe pains came on, with a good deal of hemorrhage.	It "had come in the morning;" was withdrawn, and cord cut.	Turning 10 hours after expulsion of placenta.	10 hours.	"No hemorrhage whatever."	Recovered	

TABLE II.—*Spontaneous Separati*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDI
279	Dr. Lee's Lectures, Case 4.			7th month	Placenta protruding			Insensibility; ness of extremi
280	Communicated by Dr. Isaac E. Taylor, New York.			Full time	Complete	Os dilated suddenly; dilated after removal of tampon.	Head	When seen in sultation in ing, was blanc and restless; vomiting; slight and ever minutes.
281	Smellie, vol. ii., collection 18, No. 3, Case 3.						Head and funis	Lips pale; extr ties cold.
282	Ibid., vol. iii., collection 33, No. 2, Case 10.					Os largely dilated.	Head	Had no pains; wa escaped an hour fore; faint, and most pulseless.
283 284 285	Mr. Stedman, Lond. Lancet, 1845, ii. 454.							
286 287	Mr. John. L. I'On, Lond. Lancet, 1845, ii. 644.							
287 (*a*)	Dr. Jas. Reid, Lond. Med. Gaz., 1845, ii. 1324.	23	Primipara, delicate, and weak	7½ month				

l Expulsion—Continued.

·URATION AND DEGREE OF HEMORRHAGE PREVIOUS TO EPARATION OF PLACENTA.	DISPOSAL OF PLACENTA.	MODE OF DELIVERY.	TIME BETWEEN ITS SEPARATION OR EXPULSION AND BIRTH OF CHILD.	HEMORRHAGE AFTER SEPARATION OR EXTRACTION.	FATE OF MOTHER.	FATE OF CHILD.
›fuse hemor- .age.	Placenta extracted.	Expelled by natural effort.			Recovered	Dead.
ısiderable dur- g day and even- g; was plugged.	Almost entire separation of placenta took place in a few minutes, as the head came down; removed after birth, being still slightly attached to the edge of the os.	When head descended, ergot given, and child soon born.			Recovered	Living.
ımbranes had roken, and flood- ıg abated.	Placenta lying in the vagina, along the sacrum; "finding it hindered the head, I drew it down."	Spontaneous delivery.			Recovered; a long time weak	Dead.
casional flooding ır several days; addenly broke ıt free.	"As the placenta lay in my way, I brought it away."	Turned and delivered with great ease, excepting the head.			Recovered	Dead several days.
	Had seen 3 cases in which the placenta was expelled.			And the hemorrhage in each case immediately ceased.		
	"Primary separation of the placenta," in which "the unavoidable hemorrhage immediately ceased," has occurred twice under my own observation.					
›pious bleeding 3 eparate times be- ore; severe flood- ng for 1 hour, vhen the placen- a was expelled.	Expelled.	Child expelled.	Somewhat over an hr.	"Hemorrhage immediately ceased," and no recurrence again.	Died in 8 days from diarrhœa	Dead.

TABLE II.

Cases of Spontaneous Separation of the Placenta before the Birth of the Child.

On analyzing these thirty-six cases of spontaneous expulsion of the placenta, in twenty-nine in which the result is mentioned, we find but *two deaths;* one eight days, the other twelve days after delivery, both from diarrhœa.

We are struck at once by the fact that, in these cases of spontaneous separation of the placenta, the womb acted with much more vigor than in cases of this accident in general. In *nine* the pains are spoken of as *strong*, in some very strong; in five others the pains are expressly spoken of, and in most of the others it is evident that active labor existed.

Of the 36 cases, there were—

16 delivered by spontaneous expulsion.
1 apparently so.
3 assisted by traction on foot.
9 mode not stated.
7 delivered by turning.

Of these *seven*, three were *arm presentations*, of course requiring turning; in Case 269 the placenta was separated only, not expelled from the uterus, and in Cases 270, 272, 282, it is reported as only detached from the os, implying sufficient uterine contraction to separate, but not to expel it. It is plain, then, that these cases of spontaneous expulsion of the placenta are not fair examples of placenta prævia as generally met with, but that they are exceptional, and, for the most part, those in which the womb acts with vigor sufficient to expel both the placenta and the child.

On turning to Dr. Simpson's table of cases of expulsion and extraction of the placenta, previous to the birth of the child, in the *London and Edinburgh Monthly Journal*, for 1845, among the remarks, p. 188, we find that of 116 cases in which the mode of delivery of the child is noted,

in 50 manual assistance was required,
in 66 delivery by natural pains.

Seven of our cases are to be found among Dr. Simpson's; deducting these from their respective classes, and adding the remainder to those of Dr. Simpson, we get as a total of all the cases which we can find recorded—

59 in which manual assistance was required.
78 delivered by natural effort, or 57 per cent.

Now, on referring to the deductions from our first class of cases, we find that—

236 required artificial aid, and but
50 delivered by spontaneous expulsion, or 17 per cent.

Unfortunately, Dr. Simpson has not distinguished the cases of artificial separation from those of spontaneous separation of the placenta. Mr. Radford, two years after the publication of Dr. Simpson's paper, published in the *London Lancet*, 1847, vol. ii. p. 434, a table of about forty cases of artificial, and several of accidental separation, including all that had been published to that date. We recognize, if we are not mistaken, twelve of these among Dr. Simpson's, viz: Cases 3, 8, 12, 19, 29, 58, 59, 72, 73, 81, 82, 113; the remaining 129 were consequently cases of spontaneous separation. Of these twelve, two were expelled by natural pains, and are, therefore, to be deducted from the 66 above, leaving 64 that were delivered by the natural powers after a spontaneous separation of the placenta. Mr. Radford enumerates two of Smellie's among those of artificial separation, but, as we think, on insufficient grounds, and we have included them in Table II.

After making these deductions, we find a very marked disproportion between the cases that required artificial delivery in these two classes of cases, viz: those in which the placenta was separated and expelled before the birth of the child, and those in which it became detached, as usual, after delivery. The only explanation that can be given is, that *cases in which the placenta is expelled before the birth of the child, as a class, are characterized by a tonicity of the womb and a vigor of uterine contraction which we do not find in ordinary cases of the accident;* the proof of this being in the large proportion of cases in which delivery is *perfected* by the unassisted efforts of the uterus.

Since these cases differ from others in so important a respect, a comparison of the mortality under such circumstances with that following delivery by the ordinary methods is calculated to mislead. Were the discrepancy small, we should hesitate in venturing the assertion; but the disproportion alluded to is too great to be merely accidental.

Again, we have already stated that those delivered without manual aid in Table I., as a class, seem to have been of a milder character than those delivered by artificial assistance; that the

hemorrhage previous to delivery was less in these; that, in a large proportion of such cases, the presentation of the placenta was *partial*, whereas in a large proportion of cases delivered by art, the presentation was *complete*.

Comparing cases in which bleeding was *moderate* with those in which it was marked, *considerable*, and *severe* together, we found among

Deliveries by art, 1 moderate in 9.5 severe, &c., and among
Natural deliveries, " 6.5 "

Of 111 of Dr. Simpson's cases, in which hemorrhage before expulsion is noted, it was "great" or "considerable" in 96, and slight, or "little or none," in 15, being 1 in 7.4.

If we select his cases of delivery of the child by spontaneous expulsion, in which the amount of previous hemorrhage is stated, and add to them those among our thirty-six cases not already included among his, we get *sixty* "*severe*" and "*considerable*" and *twelve* "*moderate*," or 1 in 6 moderate, a proportion almost identical with that among spontaneous deliveries in Table I.

Whether a correspondingly large proportion of *partial* presentations would have been found among these, we cannot tell, as this particular is not noted in Dr. Simpson's table, and in very few of our own cases; but as spontaneous deliveries in Table I. were to a large degree in cases of *partial* presentation, the probability is that the same is true in spontaneous deliveries after spontaneous detachment of the placenta. The existence of a partial instead of a complete presentation of the placenta would account, in a degree, for the spontaneous expulsion both of placenta and child; inasmuch as the hemorrhage being less, for the most part, and there being, above all, comparatively little risk of those sudden deluges which so often accompany complete presentations, and which paralyze at once the energies of the uterus, labor once established goes on to a natural and successful termination.

A comparatively small mortality attends these cases. We have but *two* fatal cases out of twenty-nine in which the result is mentioned, and in these the result was apparently not immediately connected with the labor. Dr. Simpson's table contains *ten* fatal cases, in several of which the result seems remotely, if at all, connected with the labor. Taking from the 131 recoveries in Dr. Simpson's table 11 recoveries after artificial separation, making 120 recoveries; and from the 10 deaths in his table the 1 death after artificial separation, making 9 deaths; and adding the 20

recoveries and 2 deaths in our table, we get 140 recoveries and 11 deaths, or 1 in 13.7, as the mortality after spontaneous expulsion of the placenta.

After the separation and expulsion of the placenta, hemorrhage for the most part ceased. Of *twenty-two* of our cases, in which the degree of subsequent bleeding is noted, it ceased in *fourteen;* in *one* there was none during labor, in consequence of the previous death of the child; in *two* there was no bleeding when found, after separation or expulsion had taken place. In Case 256 it was slight after detachment, and ceased after expulsion; in *four* it continued very slight.

Besides the cases in Table II., we find allusions to certain others. Mr. Crisp (*Lond. Lancet*, 1845, vol. ii.) had been informed by two practitioners of "cases" similar to these, in which hemorrhage had continued for some time, the placenta was expelled, and there was no hemorrhage. Of the 70 of Dr. Simpson's cases in which it was noted, in 44 it was completely arrested; in 10 it continued very slight, almost none; in 9 inconsiderable; in 1 considerable; in 1 a good deal; in 5 profuse.

It may therefore be stated with confidence that, in by far the largest proportion of cases of spontaneous expulsion of the placenta before the birth of the child, hemorrhage ceases entirely, or continues in a very inconsiderable degree.

From this circumstance, as is well known, Dr. Simpson has recommended the artificial separation of the placenta in certain cases of placental presentation.

The suggestion is a natural one, but it seems improper to *assume* that similar successful results will follow the artificial separation. We think we have shown that, to anticipate from this expedient a success equal to that following spontaneous separation, might lead to disappointment; because the latter, as a class, are characterized by pains sufficiently strong, in a majority of cases (78 to 58), to expel the child as well as the placenta.

We proceed with interest to the next inquiry, With what success has the *artificial separation* of the placenta been attended?

It may be proper to state that, up to this point, we have not analyzed our cases of artificial separation, and are consequently ignorant if the views above stated are sustained by statistics or not.

TABLE III.—*Artificial Separati*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION.	MANAGEMENT OF PLACENTA.
288	J. Jones, Lond. Lancet, 1845, ii. 347.		6th child	Presumed full	Covered nearly ⅔ of os	Full dilated.	Head	Danger imminent; almost speechless; slightly delirious.	Adherent part sep rated by fingers l less than a minut and extracted.
289	George Brown, London Lancet, 1845, ii. 694.		2d child	7th month	Nearly complete	Size of half-crown; extremely rigid.	Head	Seemingly urgent.	Separated easily wi forefinger, and length expelled a ter the child.
290	Mr. Howell, in London Lancet, 1846, i. 304.				"Partially detached;" complete	"Tolerably rigid, and slightly dilated."	Head	"Considerable hemorrhage, and slight pains."	"Removed easi ly."
291	Dr. Waller, in London Lancet, 1846, i. 304.				Nearly entire		Funis	"Was able to sit up," but lost much blood.	"Detached by hand."
292	Ibid.				Apparently complete	Admitted 2 fingers.	Arm	Danger imminent.	Detached placenta 2 fingers, but d not remove it.
293	Sir Fielding Ould, 1742; quoted by J. M. Waddy, Lond. Lancet, 1846.			Full		Dilatable.	Head	"Ready to expire."	"Extracted."
294	Thos. Lloyd, in London Lancet, 1846, ii. 124.		6th pregnancy	8th month	Complete	Very slightly dilated.	Head	Large gushes of blood, and fainting.	"Detached;" not r moved.
295	B. Tallan, Lond. Lancet, 1846, ii. 526.		6th labor	Presumed full	Found partially attached	Size of crown piece.	Head	Extreme prostration; profuse hemor'age; no pains.	"Separated" it.
296	W. G. Cory, in London Lancet, 1847, i. 25.	29	4th labor	Full period	Complete	Size of crown piece; yielding.	Head	"Powers of life on the decline;" pains continue.	"Extracted."
297	Dr. P. Smith, in London Lancet, 1847, ii. 123.	32	9th labor; pale and delicate	8th month	Complete	Dilated.	Foot	Critical; pains feeble.	Two-thirds in the va gina; the rest d tached.
298	G. F. Meadows, London Lancet, 1848, i. 27.	39	3d labor	Presumed full	Complete	Dilated.	Head	Complete exhaustion; almost senseless; slight pains.	Detached and with drawn.
299	R. Martin, Lond. Lancet, 1848, i. 120.	31	4th labor	9th month	Complete	Dilated.	Head	Pulseless; fearful exhaustion; had had no pains; appeared too feeble to allow of version.	Detached, and rec vered with little h morrhage.
300	T. Stokes, Lond. Lancet, 1848, i. 366.		1st labor		Complete	Dilated but little.		Deathly cold; pale and pulseless.	Separated; the stimulus and nourishment, and rup tured the mem branes.
301	Mr. Kinder Wood, Prov. Med. Journal, 1845, p. 133.					Moderately dilated.	Presumed head	Extremely exhausted; very cold, &c.	Completely detach ed, as the hand was introduced for turn ing.
302	Ibid.						Presumed head	Extremely exhausted, so as not to bear ordinary delivery.	Separated the pla centa.
303	Ibid.				Complete		Presumed head	Very much exhausted, so as not to bear ordinary delivery.	Separated.
304	Ibid.	35				Partially dilated, and dilatable.		Cold, and almost pulseless; extreme exhaustion.	Detached.
305	Ibid.			End of 8th month	Partially detached	Size of a half-crown.	Head	Pulse could not be counted; very cold, &c.	Detached by sweep ing the finger as the hand passed in.

Extraction of Placenta.

...E OF DELIVERY.	DURATION AND DEGREE OF HEMORRHAGE PREVIOUS TO SEPARATION.	TIME BETWEEN ITS SEPARATION OR EXPULSION OR EXTRACTION AND BIRTH OF CHILD.	HEMORRHAGE AFTER SEPARATION OR EXTRACTION.	FATE OF MOTHER.	FATE OF CHILD.	REMARKS.
...t given.	Over 4 hours; most profuse.	About an hour and a half.	Not over a teacupful.	Recovered	Dead	
...ers evacuated to ...purpose; ergot 3 ...rs after separa... of placenta.	Severe; after escape of waters, "blood poured forth with unabated violence."	Over 3 hours.	Almost immediately ceased, and no return.	Recovered	Dead as was thought before separation	During the thre... hours, had n... pain.
...e hours after re...val, "no *labor* ...*ins* having come ..." head was per...ated.	Considerable.	9 hours.	Did "not exceed 2 ounces."	Recovered	Lost	
...ild was deliver..."	Had lost much blood.	Apparently at once.	"Ceased."	Recovered	Living	
...sion after some ...urs.	Hemorrhage for many days, and "still dangerous loss of blood."	Some hours.	"Ceased" after separation, and no return.	Recovered	Presumed dead	
...sion after extrac...n.	Hemorrhage came on in morning; delivered at noon.	Apparently delivered at once.	Not stated.	Recovered	Living	
...nd passed by pla...nta, and version, ...ving dilated the ...	Copious from morning till noon.	Time required for dilating the os uteri, and for version.	After version, it is said "hemorrhage now ceased."	Recovered	Living	In a few minutes the foot of ... twin cam... down; uteru... expelled it an... the placenta.
...gged, and gave ...got; separated the ...acenta, and turn...; no pains; ergot.	Flooded profusely; unattended for 18 hours.	Turned at once.	"Not over 4 ounces after first seen."	Died in ¾ of an hour after delivery	Presumed dead	
...tural efforts, aided ...r ergot.	At intervals, for 4 days; at last severe.		After "extraction," it ceased "almost entirely."	Recovered	Living	
...er quickened the ...ins.	Had severe hemor'age several hours previous; checked spontaneously; renewed, and stopped by plug; then very profuse.	Short time.	Instantly and entirely ceased.	Doing well on 3d day	Dead	
...mulants before se...arating the pla...nta; ergot after.	Repeated for 2 months; excessive hemor'age.	An hour and a half.	"Immediately ceased."	Recovered	Dead	
...ontaneous expul...on.	Repeated for several days; almost continuous for 9 days; perfectly blanched.	In 18 hours, pains came on, and the child expelled; fearful exhaustion followed.	Hemorrhage immediately ceased.	Not stated; recovery not expected	Dead	
...ins increased; be...ame exhausting; ...urned and deliver...d.	Been bleeding for 5 hours.		After separation, found a little bleeding still going on; "continued slight after delivery."	On 4th day doing well	Presumed dead	
...ersion.	Hemorrhage during several days; excessively profuse in frequent gushes.	Immediate.	No hemorrhage.	Recovered slowly	Presumed dead	
...urned and deliver...d.	Long and copious.	At once.	Extremely slight during separation; ceased on complete detachment.	Died in 1 hour	Presumed dead	
...embranes ruptur...d; turning and de...livery.		At once.	Ceased the moment of detachment.	Died in a short time	Presumed dead	
...embranes ruptur...d; version.	Violent flooding still continuing.		No further hemorrhage.	Died in a few hours	Not stated	
...upture of the mem...branes; pains came ...on; expelled pla...centa and child.	Frequent and copious during 2 months; very profuse before delivery.	6 hours.	None after detachment.	Recovered slowly	Dead	Separation done easily and quickly, with a very trifling loss of blood

TABLE III.—*Artificial Separation*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION.	MANAGEMENT OF PLACENTA.
306	W. C. Wilkinson, Prov. Med. Journ., 1845, p. 471.			Between 6th and 7th month	Complete	Less than a 5 shilling piece.	Head	Pains very feeble; greatly exhausted; almost pulseless.	Passed 3 fingers [illegible] the hand, and [illegible] tached it, and [illegible] a while withdrew
307	H. E. Walker, in Prov. Med. and Surg. Journal, 1845, p. 557.	30	6th labor			Dilated.	Shoulder	Alarming state of exhaustion; pains feeble and unfrequent.	Separated by hand, with [illegible] it was expelled.
308	T. M. Greenhow, Prov. Med. and Surg. Journal, 1845, p. 567.	44	Has had 13 children, all but 1 at 7th mo.; 3 only living; all but 1 preternatural; many placental presentations	In 1844, 7th month			Breech	Much exhausted.	Detached by the [illegible] ger, and withdrew
309	Ibid.			In 1845, 7th month			Head and hand	Much hemorrhage.	Detached by finger
310	J. Hutchinson, Prov. Med. and Surg. Journal, 1845, p. 628.	38	9th labor	8th month	Complete	Dilatable.	Head	At first, os undilated; vagina plugged; after 11 hours, very faint, with slight pains and slight hemorrhage.	Detached by [illegible] and forced by [illegible] into vagina; [illegible] branes ruptured and placenta [illegible] pelled.
311	R. G. Jay, Lond. Med. Gaz., Aug. 1846, p. 344.	30	Large and muscular; 6th pregnancy	8th month	Part in vagina, and partly attached	Dilated.	Funis and arm	No pains, but uterus contracted so as to prevent turning.	Detached and removed it.
312	G. F. Sticking, in London Med. Gaz., Jan. 1846, p. 75.	40	12th pregnancy		Complete	Considerably dilated.	Head	Bedding completely saturated; pains active.	Separated carefully and removed.
313	Ibid., 1845, part ii. p. 94.		6th pregnancy	Apparently full	Complete		Apparently head	Insensible and completely blanched; almost pulseless; limbs cold; condition most alarming; stimulants given with difficulty.	Part found detached and external to os; removed the remaining one-third without difficulty.
314	W. A. Skinner, Dublin Hospit. Reports, 1849, vi. 347.	39	9 children and 1 miscarriage previous	Full	Complete	Partially dilated, but dilatable.	Head	Pains came on at 1 o'clock; plugging; at 5, pale and faint; lips blanched; tongue dry; pulse extremely feeble; faint, and thirsty; pains every 15 or 30 minutes.	Separated by [illegible] and middle fingers; then 4 fingers; requiring introduction of the hand; complained of [illegible] pain.
315	Dr. Alex. Tyler, Dublin Medical Journal, 1847, p. 360.	40	2d pregnancy	4th month	Complete	Size of crown piece.		Ghastly pale, and anxious; pains continued.	Placenta was extracted.
316	Bell's Bulletin (from Provincial Journal), 1846, by G. Gurney Wales.	25	4th pregnancy	7th month	Apparently complete	Os size of a crown piece thick and not dilatable.		Slight pains on 2d visit.	"Spreading my fingers between the uterus and placenta, I detached with a sweep."
317	Dr. Waller, of St. Thomas Hosp., in Braithwaite, xvii. 287, from Medical Times, Jan. 1848, p. 283; Case 24.				Complete but partially dilated	Considerably dilated; funis descended, and pulsating; cervix rather firm.	Head	No symptoms of pressing danger; bleeding going on, but not excessive.	Detached the placenta entirely, prior to turning.

xction of Placenta—Continued.

: OF DELIVERY.	DURATION AND DEGREE OF HEMORRHAGE PREVIOUS TO SEPARATION.	TIME BETWEEN ITS SEPARATION OR EXPULSION OR EXTRACTION AND BIRTH OF CHILD.	HEMORRHAGE AFTER SEPARATION OR EXTRACTION.	FATE OF MOTHER.	FATE OF CHILD.	REMARKS.
again introd, and turning; ed, on account xhaustion, for ours, and delid.	Great hemorrhage 3 weeks before, which had continued and is excessive.	1½ hours.	Ceased almost at once, on separation.	Recovered slowly		
a while, turned ly.	Had been in labor 4 hours; hemorrhage very profuse and unabated.	Some time.	Entirely ceased.	Recovered soon	Dead	
descended after enta, and soon n.	Excessive hemorrhage.		No hemorrhage after detachment, and withdrawn.	Recovered	Not stated	
vered in about hour.	Frequent during 6th month 1 or 2 profuse.	Less than an hour.	All hazard of further discharge effectually prevented.	Recovered	Dead	Ovum expelled entire.
hour after expulon of placenta, beg no pains, turned d delivered.	About 12 hours, hemorrhage severe; 5 or 6 lbs. of blood must have been lost.	1 hour.	No hemorrhage after detachment and expulsion; profuse during the operation.	Recovering	Dead	
livered with difflty by turning.	Repeated for 8 days; was plugged, and took ergot; profuse flooding came on.	Delivery undertaken at once.	It "ceased."	Recovered	Dead	
tural expulsion.	During 3 hours, it had much increased, and was increasing.	Apparently a short time.	Ceased immediately, on removal of placenta.	"Doing extremely well"	Living	Had formerly seen the value of removal of placenta.
ins came on; ruptured the membranes; spontaneus expulsion.	Flooding came on with the pains, and increased with them; hemorrhage had been excessive but had ceased.	Delivered 20 minutes after rupture of the membranes.	Apparently none; no mention of its recurrence.	Recovered	Dead	
'aited an hour; ains even less powrful; ruptured the nembranes; stimuants; delivered unler electro-galvansm and stimulus.	Hemorrhage a month before, and 3 or 4 times afterwards; bleeding during the 4 days previous to labor.	6 hours.	Active hemorrhage ceased; placenta not removed till about 5 hours, when part not confined by head at the brim was taken away.	Recovered	Dead	
ttempt to hook fœus failed.	Labor and hemorrhage came on several hours before; profuse, and increasing with every pain.		Slight draining after extraction, until a portion came away.	Died of tetanus on 16th day	Not delivered	
strong pain expelled the placenta and my hand; in an hr., moderate pains expelled the child.	At 10 A. M., copious flow without pains; 29 hours after, a profuse flooding; during an examination, a frightful gush produced syncope.	1 hour.	Hemorrhage, from this moment of expulsion ceased.	Recovered	Dead	
Hand carried in, and child extracted.	There had been bleeding for some hours; bleeding going on, but not excessive.	Immediate.	No hemorrhage followed the separation.	Recovered as usual	Asphyxiated, but restored	

TABLE III.—*Artificial Separation of*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION.	MANAGEMENT OF PLACENTA.
318	Dr. Waller, of St. Thomas Hospt., in Braithwaite, xvii. 287, from Medical Times, Jan. 1848, p. 233; Case 27.				Partial	Rigid, very; partially open.	Arm		As there was no possibility of turning I detached the placenta, and delivery waited for.
319	Ibid., Case 28.		Multipara	Beginning of 9th month	Complete	Os rigid and beginning to dilate; turning impracticable.	Feet	Bleeding was arrested, and she was recovering from syncope.	Separated placenta through its whole extent by the finger without rupturing the membranes; placenta followed the child.
320	T. Radford, in table, London Lancet, 1847, ii. 434.				Complete	Pretty largely dilated.	Head	Considerable constitutional depression.	Separated by hand.
321	Sarah Stone, in Complete Treat. on Midwifery, from Radford's table.				Complete	Pretty largely dilated.		Low and weak.	Separated and extracted.
322	Mr. Jesse, Prov. Med. Journal, ix. (Radford).				Complete		Feet	Pallid; exhausted; very bad.	Separated by hand.
323	Mr. Wilkinson, Lancet, 1845 (Radford).				Complete	Near size of a crown.	Head	Greatly exhausted.	Hand separated and extracted.
324	Mr. Maclean, in North. Journ., 1845 (Radford).				Complete	Size of half-crown.	Presumed head	Faint and collapsed.	Hand separated and extracted.
325	Mr. Radford (table).				Complete	Size of crown piece; dilated.	Head	Bad.	Separated by hand.
326	Mr. F. Wells, in London Lancet, 1845, p. 504 (Radford).				Complete	Size of half-crown, rigid.	Leg and arm	Bad.	Separated by hand.
327	J. H. Houghton, London Lancet, Jan. 24, 1846.				Partial	Size of half-crown, and firm.	Head		Hand detached and passed up.
328	J. M. Bryan, in Prov. Med. and Surg. Journal (Radford).				Partial			Bad.	Hand separated and extracted.
329	L. H. Everitt, in Prov. Med. and Surg. Journ., x. 465.			3d month; miscarriage			Head and one hand	Syncope and exhaustion.	Hand separated and extracted.
330	Mr. Farr, Lond. Med. Gaz., 1847, ii. 302.	40	Very destitute; 10th pregnancy		Complete	A fibrous tumor in posterior lip of the cervix.	Head	Greatly emaciated.	Separated by hand; operation occupied an hour.
331	Mr. Radford, see table in London Lancet, 1847, vol. ii.				Complete		Shoulder	Very bad; exhausted.	Separated and extracted by hand.
332	Dr. R. E. Bland, Missouri Med. and Surg. Jour., 1847.	30	5th or 6th pregnancy had good health	Full time or near	Complete	Soft and dilatable; size of a dollar.	Head	Great alarm; blanched; effective pains almost ceased.	Separated by the finger, and pressed back till ergot took effect; withdrawn after birth of child.
333	Dr. Storer, Am. Journal Med. Sci., Oct. 1852, p. 345.			Presumed full	Complete	Unrelaxed.	Head	Great exhaustion.	Detached, and left alone.
334	Edward Ray, in Prov. Medical Journ., 1848, p. 124.	28	4th pregnancy	Full time	Complete	Open; uterus firm and globular.	Head	Unconscious; almost pulseless; no pains; blood oozing from vagina.	Gave stimulants, and proceeded at once to separate the placenta with his finger, and withdrew it half an hour after he was summoned.

...traction of Placenta—Continued.

...DE OF DELIVERY.	DURATION AND DEGREE OF HEMORRHAGE PREVIOUS TO SEPARATION.	TIME BETWEEN ITS SEPARATION OR EXPULSION OR EXTRACTION AND BIRTH OF CHILD.	HEMORRHAGE AFTER SEPARATION OR EXTRACTION.	FATE OF MOTHER.	FATE OF CHILD.	REMARKS.
...rned.	There was considerable hemorrhage.	Less than 12 hours.	No hemorrhage occurred.	Died of muco-enteritis during the week	Died	Disease probably induced by loss of blood.
11 A. M., waters ...ad escaped, and os ...as dilated; placenta felt hanging ...own; entirely separated; child born ...ith little assistance.	Called suddenly from profuse hemorrhage; vagina full of clots.	"From evening" till 11 A. M.	From its separation in the evening to 4 A. M., no flooding; then pains continued, and a very slight discharge of blood.	Recovered as presumed	Dead	
...atural powers.	Profuse.	An hour and a half.	Completely arrested.	Saved	Lost	
...urning presumed.	Very violent.	Immediately delivered.		Saved	Saved	
...atural delivery.	Very profuse.	3 hours.	At intervals.	Died 26 hours after	Not stated	
...urning.	Excessive.	1½ hours.	Almost ceased.	Saved	Not stated	
...atural powers, aided by ergot.		1½ hours after ergot.	Ceased.	Saved	Lost	
...erforator and crotchet.	Very considerable.	Immediately.	Ceased.	Saved	Lost	
...eg drawn down.	Great.	Presumed about 13 hrs.	None.	Saved	Lost some days	
...urning.	Violent.	Immediately.	Ceased.	Saved	Not stated	
...urning.	Great.	Immediately.	Ceased.	Saved	Living; soon died	
...atural powers, with ergot.	Profuse.		Abated, but did not stop till cold water used.	Saved	Miscarriage	
...ectis.	Slight hemorrhage previously; profuse when os began to dilate.	Apparently no interval.	Ceased after complete detachment.	Died in 6 hours, from prostration	Dead	
...urning.	Very great and prostrating.	6 hours.	Ceased almost entirely.	Saved	Dead	
...rgot given; child expelled.	Sudden and very profuse, which continued.	Half an hour.	Entire cessation.	Saved	Living	Bleeding could be controlled by pressure of fingers.
No attempt to deliver, on account of exhaustion; 10 hrs. afterward, head had come down, and was delivered by forceps.	Sudden profuse; continued till a gallon lost.	10 hours.	Ceased.	Died on 8th day	Not stated	
2½ hours after removal of placenta, pains came on; in 1½ hours more, perforation, and, in 1½ more, child expelled, ergot having been given.	No previous flooding; suddenly lost 5 pints, beside more.	5½ hours.	Continued *during* its removal, and ceased entirely on its removal.	Recovered well	Dead	

TABLE III.—*Artificial Separation of*

NO.	BY WHOM AND WHERE REPORTED.	AGE.	NO. OF PREGNANCY AND GENERAL HEALTH.	PERIOD OF PREGNANCY.	PARTIAL OR COMPLETE.	STATE OF OS UTERI.	PRESENTATION.	GENERAL CONDITION.	MANAGEMENT OF PLACENTA.
335	G. Bennett, in London Lancet, Sept. 1852, p. 216.	27	3d pregnancy		"Over the os; partly detached;" complete	Os a little open; soft and dilatable.	Head	Pale and cold; pulse scarcely perceptible; perfectly sensible; pains very feeble.	Detached it with the fingers, and ruptured the membranes
336	Portal, from Dr. Lee, in Lancet, 1847, ii. 548; Case 69.			8th month	Complete	Slightly open; size of a crown piece.	Probably head	Neither power or consciousness.	Separated and withdrew the placenta
337	Ibid., Case 43.			6th month	Complete	Size of a crown piece.	Head	Immediate delivery alone could save her.	Os somewhat dilated; detached the placenta and withdrew it
338	Communicated by Prof. R. D. Mussey, Cincinnati.							Loss of blood so great that she was unconscious; pulse and breathing nearly extinct.	Without delay, the hand was introduced, the placenta entirely separated and
339	Dr. Waller, in Braithwaite's Ret., from Med. Times, 1848, p. 233; Case 5.						Arm		Was told the placenta had originally presented, and been entirely removed.
340	Dr. Cox, Amer. Med. Monthly, Oct. 1854, p. 281.				Complete	Dilatable after plugging.		Considerable depression of strength.	Separated the placenta.
341	Prof. Simpson, London Med. Gazette, xxxvi. 1011.			7th to 8th month	Apparently complete	From its small size and great height, with difficulty reached.		Membranes ruptured, and ergot given; discharge continued; was blanched and prostrated.	It seeming very difficult and dangerous to turn, the placenta was detached and gradually extracted.
342	M. Baudelocque, L'Art des Accouchement, p. 33.						Arm and head		Separated and extracted by an ignorant midwife.
343	W. Perfect, Case 109.							Good.	Separated, and laid hold of roughly and pulled forward.
344	Mr. Wilson, in Prov. Med. and Surg. Journal, 1844.							Exhausted.	Ignorantly separated and extracted.
345	Thos. Radford, M. D., Midwife.						Head	Very low.	Ignorantly separated and extracted; long forceps used.
346	Ibid.					Fully dilated.	Arm	Very faint and feeble.	Ignorantly separated and extracted.
347	Ibid.					Partly dilated.	Head	Good.	Ignorantly separated and extracted.
348	Ibid.					Nearly dilated.	Head	Very low.	Ignorantly separated; forceps used.
349	Ibid.						Head	Bad condition.	Ignorantly separated and extracted.
350	Dr. Lowenhart, No. 113, Simpson's tables.						Arm		Ignorantly separated and extracted by a midwife.
351	Mr. Crawford, No. 58, Simpson's tables.						Head		Accidentally separated, on introduction of hand for turning.
352	Dr. McDonald, No. 59, Simpson's tables.						Head		Accidentally separated, on introduction of hand for turning.
353	Mr. Campbell, No. 73, Simpson's tables.						Head		Accidentally separated, on introduction of hand for turning.

xtraction of Placenta—Continued.

MODE OF DELIVERY.	DURATION AND DEGREE OF HEMORRHAGE PREVIOUS TO SEPARATION.	TIME BETWEEN ITS SEPARATION OR EXPULSION OR EXTRACTION AND BIRTH OF CHILD.	HEMORRHAGE AFTER SEPARATION OR EXTRACTION.	FATE OF MOTHER.	FATE OF CHILD.	REMARKS.
urned and delivered at once.	Had occasional floodings for a week; not alarming till to-day; pains came on, and profuse bleeding.	Delivered feet and legs at once; body soon expelled.		Recovered	Living	Child small.
urned and delivered at once.	Hemorrhage going for 10 or 12 days.	Immediate.		Recovered	Living	Inflammation of uterus and eye followed.
hen seized a foot and drew down leg, completing delivery at once.	"Had a great flooding."	Immediate.		Recovered	Not stated	
hild turned and delivered; 3 or 4 minutes only occupied.		Immediate.		Recovered	Living	
mpaction; impossible to turn; embryotomy difficult; no satisfactory rally.			No hemorrhage followed its extraction.	Died at end of a week of low fever	Dead	
hen turned, "from fear of internal hemorrhage."	Repeated hemorrhages during 2 months.	Immediate.		Died on 9th day from irritative fever	Dead and exsanguined	
pontaneous expulsion.		2 hours.	"All hemorrhage ceased."	Recovery perfect and speedy	Presumed dead	
Turning.	"Presumed great."		Entirely ceased.			
Turning.	Not great, but frequent.	5 hours.	Continued slight.	Saved	Saved	
Turning.	Very violent.	"Considerable."	Not increased to any dangerous extent.	Saved	Lost	
	Great.	3 hours.	Very trifling.	Lost	Lost	
Turning.	Great.	2 hours.	None.	Saved	Lost	
Natural powers.	Great.	4 hours.	Ceased.	Saved	Lost	
	Great.	2 or 3 hours.	Ceased.	Lost	Lost	
Natural powers.	Great.	1 hour.	Nearly ceased.	Saved	Lost	
Turning.				Saved	Lost	
Turning.	Exhausting.	Less than 10 minutes.	None.	Saved	Saved	
Turning.	Excessive.	A few minutes.	Good deal.	Saved	Lost	
Turning.	Excessive.	Immediate.		Saved	Saved	

TABLE III.

Mortality after Artificial Detachment of the Placenta.

This table embraces all the cases published in which the placenta was separated by the hand. Mr. Radford, in a table previously alluded to, includes several cases from Portal and Smellie, which do not appear to us to belong to this head. In the most of these, as it seems to us, there is no evidence that the *separation* spoken of was more than partial, in order to admit the hand in turning; and, in Case 71 of Portal, it is distinctly stated that he carried the hand by the placenta, according to the abstract of Portal's cases by Dr. Lee, in *London Lancet*, 1847, vol. ii. We have included also a few cases in which the separation was effected by ignorant persons, and a small number in which it took place accidentally in delivery by turning. We have included these because that, inasmuch as the separation occurred from causes other than the spontaneous efforts of the uterus, the results following such separation will not differ from those in which the separation was accomplished by the intelligent practitioner. At any rate, the difference, if any, would be against the proposed operation, not in its favor.

Excluding Cases 297, doing well on the third day; 300, doing well on the fourth day; 312, "doing extremely well;" 299, recovery not expected; 342, not stated; 329, a miscarriage at the third month—we have *forty-seven recoveries* and *thirteen deaths*, or *one in four and six-tenths* (1 in 4.6), as the gross mortality after *artificial separation*; while that after *spontaneous separation* is a trifle less than *one* in *fourteen* (1 in 14); a result in accordance with our anticipations.

The mortality after ordinary modes of treatment was set down by Dr. Simpson, in his *complete* table in the *London Lancet*, 1847, vol. ii., as 180 in 654, or one in every 3.6. This table embraced only the experience of such individuals, or institutions, as furnished at least ten cases of the accident.

To these, in a note, Dr. Simpson adds certain others which had been published subsequently to his paper, and part of them, as he says, for the express purpose of showing a less mortality than usual. They were those of

Dr. Merriman	89 cases,	22 deaths.
Schwoerer	15 "	5 "
Mr. Russel	36 "	7 "
Dr. Campbell	22 "	1 death.
Mr. Newnham	13 "	1 "

To these may be added—

Dr. W. H. Crowfoot* . .	14 cases,	3 deaths.
Mr. Charles Clay† . . .	42 "	6 "
Dr. Ashwell‡	20 "	2 "
Dr. Waller§	33 "	10 "
	284	57
	654	180
Total	938	237 lost, or 1 in 3.95.

The mortality of those cases in our first table, in which the presentation of the placenta is noted, is precisely the same, viz: 66 deaths to 195 recoveries, or 1 in 3.9 of the whole.

In the London *Lancet*, 1847, vol. ii. p. 381, Dr. Simpson states, that among the cases comprising his table of 654 cases, 421 patients were delivered by turning, of which 144 died, or 1 in 2.9.

The gross mortality after artificial separation is, therefore, somewhat less than the general mortality under ordinary modes of treatment, and especially less than after turning; but it is very much greater than after *spontaneous expulsion of the placenta.*

Let us inquire into the character of the cases in which this expedient has been resorted to, and compare them with the other classes of cases, since it may appear that these were cases of more than usual severity.

1. *Presentation of Placenta.*

30 cases were complete.
5 " apparently complete.
3 " nearly "
4 " partial. Total 35 complete, 7 partial, or 16.6 per cent. only *partial;* whereas, in our first class, among recoveries, 37 per cent. were partial; and, among deaths, 23 per cent. partial. Here is a considerably larger proportion of complete presentations among those in which artificial separation was resorted to.

* Prov. Med. and Surg. Journ., 1845, p. 674.

† From Med. Times, in Lond. and Ed. Journ., 1842, p. 732.

‡ Lond. Med. Gaz., part ii. 1845, p. 1196, Dr. A. says he has had at least 20 cases of complete presentation, and but two deaths.

§ Braithwaite, vol. xvii. p. 289.

2. *Hemorrhage before Separation.*

This was in 62 cases, "severe," "very urgent," "profuse," &c.
" 3 " "considerable."
" 1 " "moderate," or 1 moderate in 66 cases.

In our first class, we had a total of 147 in which the hemorrhage was "severe" and "considerable," and 15 "moderate," or 1 in 11 of the whole, moderate.

3. *Condition of the Patient prior to Separation of the Placenta.*

There was extreme and alarming prostration in 31* cases.
"Prostration," or "exhaustion," apparently not so profound as the others, in . . . 10† "
"Copious," severe hemorrhage in . . . 13‡ "
No urgency in . . . . . 5§ "

Among *recoveries* in our *first class*, we find that, previous to delivery, the general condition of the patient was as‖ follows:—

Alarming prostration in . . . . . 38 cases.
"Prostration," or "exhaustion," "producing syncope," &c. in . . . . . 40 "
Hemorrhage more or less severe in . . 24 "
No urgency, or apparently none, in . . 35 "

Among *deaths* in the same class there was—

Alarming prostration in . . . . . 37 cases.
"Prostration," &c., in . . . . . 6 "
Great hemorrhage in . . . . . 17 "
No urgency in . . . . . 5 "

From this comparison, it is very plain that the 66 cases in which the placenta was artificially detached, embrace a considerably larger proportion of severe cases than are ordinarily met with—indeed, the mild and severe cases among these correspond remarkably, not only in proportion, but in numbers, also, with those among the deaths as just given above; that is, they were, as a whole, previous

* Among these there were 23 recoveries and 8 deaths.

† Cases 289, 321, 331, 332, 335, 341, 344, 346 recovered; Case 340 died.

‡ Cases 294, 309, 310, 311, 316, 319, 320, 327, 329 recovered 312, (see) Case 315, (see) 318, 330 died.

§ Cases 290, 291, 317, 344, 347—all recovered.

‖ There is some difficulty in making such a classification, but the above cannot differ much from the truth.

to the separation of the placenta, suffering apparently from about an equal degree of exhaustion with those patients who, subjected to ordinary treatment, died.

4. *Mode of Delivery.*

Natural delivery in 22, of which { 8 had ergot. / in 1, ether increased the pains. / in 1, electro-galvanism do. }

Craniotomy	in	3,
Forceps	"	1,
"Extracted"	"	2,
Turning	"	33,
Vectis	"	1,
Undelivered	"	1,
Mode not stated,	"	3,

or *twenty-two* by the natural powers, and *forty* by artificial aid; or about *one in three* of the whole delivered by spontaneous expulsion of the child.

Here is a much larger proportion of deliveries by the *natural powers*, than was found among the cases composing Table I.; the proportion of such among those being nearly *one in six;* although, as we have just shown, the cases in Table III. were, as a whole, of a decidedly more grave character than those in Table I.

We have attributed the great proportion of *deliveries by the natural efforts*, after *spontaneous expulsion* of the *placenta*, to the existence of a more than ordinary vigor of uterine action in such cases throughout. It may now be asked, if the increased proportion of *spontaneous deliveries*, after *artificial* detachment of the placenta may not be due to the same cause; and if the inferences thus far deduced, that these were, as a class, cases of unusual severity, may not be incorrect. This is answered by a reference to the *time that elapsed* between the separation of the placenta and the birth of the child in the two classes.

Of the *spontaneous deliveries* of the child, among Dr. Simpson's cases and our own, after *spontaneous separation* of the placenta, the child followed

The placenta	in	3 cases	in	"several hours."
"	"	2 "		"considerable time."
"	"	1 case	in	10 hours.
"	"	1 "		8 "
"	"	5 cases	in	4 to 5 hours.

The placenta in 1 case in 3 hours.
" " 1 " 2 "
" " 7 cases in 1½ "
" " 4 " 1 hour.
" " 3 " ½ "
" " 1 case soon.
" " 37 cases in 10 minutes, or less.

Or, in 29 cases, over ten minutes; and in 37 cases, in ten minutes or less.

In *spontaneous deliveries* after *artificial separation*, the child followed

The placenta in 1 case in 18 hours.
" " 2 cases in 6 "
" " 1 case in 5½ "
" " 1 " 4 "
" " 1 " 3 "
" " 1 " 2 "
" " 2 cases in 1½ "
" " 1 case over 1¼ "
" " 2 cases in 1 hour.
" " 3 " ½ "
" " 1 case in several hours.
" " 2 cases in a short time.
" " 1 case immediately.

Or, in 16 cases, it followed in a half hour or more, in two in a "short time," and in *one* only *immediate*.

The true inference from these facts we conceive to be, that in a majority of cases of spontaneous expulsion of the placenta, the contractions of the womb, on account of the preponderance of partial presentations among such, and the less severe character of the hemorrhage, were sufficiently strong to expel the child at once, or within ten minutes; but that in the cases of artificial separation, *the hemorrhage having ceased in consequence of the detachment, the vital powers have rallied, and at various intervals, from one-half hour up to eighteen hours, have expelled the child.*

In further support of this inference is the fact, that of cases of artificial detachment in which delivery of the child took place by the natural efforts, a fair proportion were in extreme danger, before the detachment was undertaken.

Thus, in 13 there was extreme prostration.
" 4 " prostration less decided.
" 4 " severe hemorrhage.
" 1 " no urgency.

5. *Hemorrhage after Detachment of the Placenta.*

In 35 cases it ceased *immediately* and *entirely.*
" 1 case, no further hemorrhage spoken of.
" 1 " none for several hours, then slight.
" 2 cases it "ceased almost instantly."
" 4 " " " entirely.
" 1 case there was not over a teacupful lost afterward.
" 1 " not over two ounces.
" 1 " " four "
" 3 cases it continued slight, and in 1 after delivery.
" 1 case it continued slight, until part of the placenta came away.
" 1 " it continued at intervals.
" 1 " it was "not increased."
" 1 " "no further danger."
" 1 " miscarriage, it abated, but ceased only after cold water.
" 1 " it continued a "good deal."
" 7 cases immediate delivery followed.
" 4 " not stated.

Total, 66 cases.

It appears from the above that, in a large proportion of cases, hemorrhage either ceases at once and entirely, after detachment of the placenta, or it ceases within a short time; and that if it continues at all, it is but to a trifling degree. In Case 252 alone, did it continue to a severe degree; the patient recovered. In Case 322 it continued at intervals, and the patient died.

6. *Conditions for which Detachment of the Placenta was resorted to.*

In 31 cases there was *extreme exhaustion* previous to the operation. Of these, 23 recovered and 8 died, or nearly 1 in 4 of the whole. Of the eight fatal cases—

Case 295 died in a half hour.
" 303 " in a short time.
" 304 " in a few hours.
" 322 " in 26 hours.
" 383 " on 8th day.
" 339 " in one week, from fever.

In Cases 345, 348, the period of death is not stated.

In 11 cases there was *rigidity of the os uteri.* In 9, the patient recovered, viz: Cases 289, 290, 292, 316, 317, 319, 326, 327, 341. Two patients died, viz: Case 318, in one week, of muco-enteritis, and Case 333, on the eighth day; *one in five and a half* died.

Among these, besides rigidity of the os, there were—

In 4, extreme exhaustion, with 1 death.
" 3, severe hemorrhage, " 1 "
" 2, "prostration," or "exhaustion."
" 2, no urgency.

It will be remembered that in our first class of cases, the mortality, when complicated with rigidity of the os uteri, was *one* in *two and four-tenths* after turning had been performed; and as high as one in three, after including twelve cases delivered by perforating the head, of which one only died.

7. *Disposition of the Placenta.*

In 36 cases the placenta was simply detached; in 30 it was withdrawn at once. Of the 35 cases in which hemorrhage ceased at once and entirely, it was separated only in 20 cases, and separated and withdrawn in 15 cases. Hence it would appear that the mere *separation* of the placenta is sufficient to arrest the hemorrhage, and that its withdrawal is generally unnecessary; thus obviating an objection that has been urged against the operation, that the withdrawal of the placenta through an undilated os must be difficult and hazardous.

8. *Time between Separation of the Placenta and Delivery of the Child.*

Among the children *saved*, delivery took place

In 6 immediately.
" 3 apparently immediately.
" 1 immediately in part.
" 1 after dilating the os and turning.
" 1 in less than ten minutes.
" 1 in half an hour.
" 1 in five hours.
" 1 not stated.

Among children *lost*, delivery was

In 5 immediate.	In 1 in four hours.
" 1 over twenty minutes.	" 1 in five and a half hours.
" 2 in less than an hour.	" 3 in six hours.
" 3 in one hour.	" 1 in nine hours.
" 3 in an hour and a half.	" 1 in less than twelve hours.
" 1 in less than an hour.	" 1 in eighteen hours.
" 1 in two hours.	" 1 in a short time.
" 3 in three hours.	" 3 in a considerable time.

In the cases in which the time was not stated, *six* were immediate, the remainder over an hour and a half.

9. *Mortality of Children after Artificial Detachment.*

	15 children were saved.
	32 " " lost.
In	16 result not stated.
	2 not viable.
	1 undelivered.
Total,	66

The mortality among the children, 15 saved and 32 lost, or a *trifle less than one in three* saved.

There were saved, after ordinary modes of delivery, *one in two and seven-tenths* of the whole.

After spontaneous separation, according to Dr. Simpson (his table consisting chiefly of such), within a *trifle of one in three* were saved.

The similarity of results, to the child, in these three classes, is very striking. It exposes clearly the very prevalent error, that in cases of placenta prævia, the child's life is almost necessarily sacrificed. This idea is more or less distinctly advanced by almost every writer on the subject. In Dr. Lever's thirty-four cases, the lives of a *majority* of the children were saved; while among Dr. Merriman's only one in four were saved. This difference is doubtless due to the fact, that the former were patients of the Guy's Hospital Lying in Charity, and enjoyed the advantage of able medical assistance throughout, whereas a large proportion of Dr. Merriman's cases were seen in consultation, and many at an advanced stage of the labor.

While the probabilities of saving the child's life under ordinary modes of delivery have been under-estimated, the risk to the child

from separation of the placenta has been exaggerated. Dr. Ashwell, for example, says it is an operation attended not "unfrequently with certain injury to the mother, and invariably with the loss of the life of the child."

But while we find that, in the cases in which it has been thus far tried, a proportion of children has been saved, equal to that after other modes of delivery, we must not fail to note that the children born alive were delivered within a short time after the separation took place. In Case 343, delivery occurred five hours after the alleged separation of the placenta. This is a case from Perfect, and it may well be doubted if, in this instance, the separation was completed, unless, indeed, it was one of those exceptional cases in which the children are said to have remained asphyxiated for an almost fabulous period, and then restored. In Case 332, the interval seems to have been very considerable, and from its great interest, we quote its leading particulars, incorporating several facts obligingly furnished us by Dr. Bland.

Case 332. Was called at 10½ P.M. to Mrs. B., æt. 30 years; fifth or sixth labor; previous good health. The first intimation of approaching labor was, that feeling a desire to urinate, she availed herself of a closed vessel, and on arising from it, to her no little alarm and astonishment, it was observed half filled with blood. The hemorrhage continued after she resumed the recumbent position, in such excess as to saturate and pass through the bed, running in a stream upon the floor. "I was immediately sent for, and found her as follows: Great alarm, countenance blanched, pulse weak and frequent, excessive restlessness and constant discharge of blood. The os tincæ was soft and dilatable, and open to the size of a dollar. In attempting to introduce my finger to ascertain the presentation, it was obstructed by the placenta on every side, the right excepted; here, with some difficulty, the finger was introduced." Dr. B. considered that it had originally adhered on all sides. On a more careful examination for some inches above the orifice, especially on the left side, the placenta was discovered to be unequally separated from the inner surface of the uterus, and the hemorrhage proceeded from these unequal separations. "This was clear to my mind from the fact that whenever I placed my fingers upon the placenta and gradually and firmly pressed upon the parietes of the uterus [with the back of the fingers?] from which it was separated, I completely arrested the discharge. For some half hour the hemorrhage was completely controlled by these means.

"Effective labor-pains having now almost entirely ceased, and discovering, whenever the hand was withdrawn, the hemorrhage returned with increased violence, I determined to turn and deliver by the feet." Before acting upon this determination, in accordance with the suggestion of Dr. Simpson, he introduced the finger, carefully separated the placenta, breaking up the irregular adhesions, and by this means permitting the uterus to contract equally and regularly upon its contents; "the result of which, to my gratification and astonishment, was the entire cessation of hemorrhage, and consequent danger. I now pushed the part of the placenta that obstructed the progress of the head, to the left side, and held it there with my finger, to prevent its descent before the head. I paused a few moments to consider the course to be pursued. In the short time allowed for thought, I determined to prevent, if possible, the descent of the placenta before the head of the child, and to sustain it until effective pains could be excited. To accomplish this, I gave grs. xxx of ergot; in fifteen or twenty minutes I discovered considerable uterine action, which increased steadily, resulting, in about a half hour, in the birth of the child, alive and vigorous, at about 2 o'clock A. M.; there was no bleeding afterward; the placenta was easily withdrawn, and mother and child are doing well." Dr. B. says "the hemorrhage came from the bleeding mouths of the uterine vessels, and not from the placenta. Unequal separation of uterus and placenta prevented regular uterine contractions; hence the large vessels of the exposed uterine surface poured out their blood; and relief was effected by a total separation and a consequent regular and general contraction of the organ closing up the bleeding mouths."

Dr. Bland* states that his motive in preventing the descent of the placenta, before the child, was that the supply of arterial blood to the child might not be entirely cut off. Though all direct connection was of course destroyed by the separation of the placenta, the child appears to have survived, in this instance, an unusual length of time, and was born vigorous, not asphyxiated, as might have been anticipated. In connection with this, we note the following from the *Lond. Lancet*, Sept., 1852: George Bennet, M. R. C. S. Sydney, says he has had four cases, and in each detached the placenta, and each recovered; three children were stillborn, one living. His friend, Wm. Bland, tells him that for 25 years he has, as soon

* Dr. R. E. Bland, Miss. Med. and Surg. Journ.

as the dilatability of the os would permit, separated the placenta and extracted it, and placed it in a hand basin of warm water at 98°, and he says "the results have far exceeded his most sanguine expectations."

We have shown that among the cases in which this operation has been thus far performed, there was a larger proportion of severe cases than could be found among an equal number of cases in our first class, and which were subjected to ordinary modes of treatment; and, notwithstanding this, the loss of life among them was less than after the ordinary modes of treatment. But even if this diminished mortality did not so distinctly appear, we have the important fact demonstrated beyond reasonable doubt, that entire separation of the placenta is followed, in almost every instance, by cessation of hemorrhage, and that in a majority of cases the cessation is instantaneous and complete. Furthermore, it does not appear that the operation is attended by any peculiar difficulty, or that it exposes the patient to any especial danger. This knowledge affords the assurance that we have a precious resource, where delivery by other means is unadvisable or impracticable.

Why then, it may be asked, should it not always be resorted to when the placenta presents? Were the mother's safety alone consulted, there can be little doubt that an early suppression of the loss of blood would convert the most of such into cases of simple labor; but we have shown that when the placenta has been detached, almost immediate delivery is necessary to secure safety to the child. Hence, in cases permitting immediate delivery, there can rarely be a necessity for detaching it entirely, when a partial separation will allow the introduction of the hand for turning.

In those instances of rigidity of the os uteri, in which the flooding is dangerous and uncontrollable, as, according to experience, it frequently is, this must prove a most valuable expedient, as is shown by a mortality of 1 in 5.5, compared with that of 1 in 2.4 after turning. Again, in cases of extreme prostration, in which immediate delivery by turning would be hazardous, and yet the hemorrhage continues, the detachment of the placenta may be resorted to with almost a certainty of its putting an end to the loss of blood, and thus affording an opportunity for the natural powers to rally, perhaps to a spontaneous expulsion of the contents of the womb.

To these two classes of cases it was limited by Dr. Simpson and Mr. Radford, who have been chiefly instrumental in bringing this

subject to the notice of the profession; and to such it ought to be confined, if we have interpreted our cases aright.

It would be interesting to inquire into the influence of the particular circumstances which Dr. Simpson specifies, as indicating the propriety of this operation, viz: "first pregnancies," "premature labors;" but as in any case, the propriety of the operation is to be indicated by the circumstances attending it, such an inquiry would lead to no practical results; we seek only to learn the conditions that call for it.

GENERAL REVIEW OF THE SUBJECT.

From what has preceded, we deduce the following as the course which the experience of the profession has shown to be the most likely to be attended with success in the management of this accident.

1. We have shown that, as a general rule, cases in which delivery takes place prematurely are attended with greater risk to the mother than those occurring at the full time, with the exception of those before the seventh month, which rarely prove fatal, in consequence of the undeveloped condition of the bloodvessels of the womb at that early period. The probabilities of the child being saved are probably better at full term, though this is not so distinctly shown by our statistics. Hence, if it be possible, cases in which premature delivery is threatened ought to be conducted to the full period.

This was the advice of Mr. Kinder Wood, a successful obstetrical teacher, who was in the habit of detaching the placenta in cases of dangerous hemorrhage from its presentation. When hemorrhage comes on before the completion of the term of pregnancy, absolute rest and cold, with, in some cases, opium, should be resorted to for the purpose of restraining hemorrhage, *avoiding* the use of the *tampon* until the progress of the case indicates that extreme measures must be resorted to; for the introduction of the tampon in the cases in which it is noted was, in certain instances, soon followed by labor pains more or less effective. But, when its use is determined upon, a suppression of the hemorrhage may be quite confidently relied upon for a time, at least, provided its introduction be skilfully effected. In many instances, however, at this early period, the hemorrhage continues, and artificial delivery is the only resource.

2. Most cases of *partial* placental presentation require only rup-

ture of the membranes. By this simple expedient, the uterus is brought into active contractions, and hemorrhage restrained within moderate limits, or entirely suppressed, until delivery takes place spontaneously, as occurs in a large proportion of cases, or is accomplished by art. But hemorrhage, in cases of partial presentation, is not always thus controlled, and our first table furnishes not a few which were attended by most alarming loss of blood.*

3. In cases of complete presentation, if hemorrhage does not yield to simple measures, and in dangerous cases of partial presentation, early delivery is of the first importance. To select the most favorable opportunity for this is often one of the most critical tests of the physician's skill. To do this before the os has become dilatable is to incur the risk of inflicting serious lesions upon the uterine neck, and a difficult and protracted withdrawal of the child; while, to wait unnecessarily long, is to expose the patient to great hazard from unnecessary loss of blood. The rule should be to wait not for a dilated, but a dilatable condition of the os. The great source of danger in the conduct of cases of placenta prævia is the delay required to permit the necessary dilatation of the mouth of the womb; while waiting for this necessary prerequisite to delivery, exhausting hemorrhage has often taken place, from the effects of which the patient has never recovered.

With the hope of keeping the bleeding in check during this necessary delay, the membranes may be advantageously ruptured; for we need not, in these cases, fear any embarrassment to delivery from this cause, inasmuch as the uterus is almost invariably relaxed after severe hemorrhage. The administration of ergot, under such circumstances, in the manner already described, with the view of keeping up a pressure upon the mouths of the bleeding vessels until the os should dilate, is sanctioned by the results of some of our cases in which it was employed; and although not often given, as we judge, with this particular view, it promises to be, in many cases, a valuable resource. In Dr. Fountain's two cases of complete presentation, rapid dilatation took place under its repeated administration; a compression of the placenta was kept up until the os permitted the introduction of the hand for turning, and both mothers and children were saved. In this way we imitate, to a certain extent, the course pursued by nature in spontaneous expulsion of the child.

* Of the eight cases lost among Dr. Lever's cases, *four* were complete and *four* partial presentations.

The inhalation of *ether*, in one instance, quickened labor, and chloroform, in another, seemed to favor relaxation of the uterus. How far these agents, especially the latter, may prove subservient to this important object, experience has not yet determined.

4. But whatever means may be resorted to for keeping in check the flow of blood while the os is undergoing dilatation, the physician should not leave his patient after that process has begun. Dangerous, and even fatal flooding sometimes takes place even when the os is yet undilated, as happened in a case recorded by Smellie. Dr. Rigby laid down the rule, that the patient should not be left by her physician after the placenta was discovered to be presenting. This rule he afterwards modified, as the interval in such cases is too long to justify the sacrifice of time. But the physician should remain beside his patient until active hemorrhage has ceased; and if dilatation is in progress, it is imprudent to leave the bedside until delivery has been effected. It has occurred in the experience of every physician to be surprised by the unexpectedly sudden dilatation of the os in some cases of ordinary labor. On reading several of our cases, it is very apparent that from a neglect of the precaution here urged, the physician failed to be at hand when sudden and fearful hemorrhage took place, followed by perilous and even fatal exhaustion. Such sudden losses of blood are not uncommonly accompanied by a degree of dilatation of the os uteri that would render immediate delivery admissible, as in Case 69, from Rigby.

It corresponds with the experience of those who have had the largest opportunities for observation, and is an inference certainly warranted by a general survey of our cases, that of patients who enjoy intelligent and active medical assistance from the commencement of hemorrhage until the termination of labor, a very large proportion are conducted through their perils in safety, and no inconsiderable proportion of the children are saved. An early delivery by turning has been sanctioned by long experience, as the best general mode of treatment for securing safety to mother and child.

5. But in some instances, hemorrhage will not yield to the means thus far recommended, and the os continues unprepared for artificial delivery. In these cases we may separate the placenta, with the confidence of almost certainly putting an end to the hemorrhage, and with an almost equal certainty of destroying the child; unless the os should permit artificial delivery within a short time after the

separation is effected. The urgency of the symptoms in such instances, is sometimes very great, and it must be left to the judgment of the practitioner, in each individual instance, to determine whether to separate the placenta or to wait still longer.

6. The os may be dilated or dilatable, and the patient in a state of extreme exhaustion. Here, turning could be performed with facility, but delivery would be hazardous. In these cases the placenta may be detached with much less disturbance to the mother than would occur in turning under such circumstances, and an opportunity afforded for the patient to rally before she should be delivered. Table III. affords several instances in which spontaneous delivery took place, after such separation, and the patient recovered. Yet even in these cases, we must bear in mind that children are by no means necessarily destroyed by excessive loss of blood by the mother; and a resort to the stethoscope would doubtless often prove of great assistance, where in doubt as to the propriety of detaching the placenta. When we have satisfactory evidence that the child is dead, there can be no objection to an early resort to the separation of the placenta.

We have not entered into the controversy respecting the source of hemorrhage in placenta prævia, because our statistics furnish but little, and that contradictory, evidence on the subject. In Case 332, Dr. Bland felt the hemorrhage proceeding from the uterus, and in another case it was felt to come from the placenta. Those interested in investigating this point, will find in Dr. Murphy's *Lectures* an interesting *résumé* of the arguments drawn from the structure of the placenta, and its connection with the uterus, by which its placental origin is advocated; and in the communications of Drs. Lee, Chowne, and Ashwell, in vol. ii. of the London *Lancet* for 1847, the considerations in favor of the belief that it proceeds from the mouths of the exposed uterine vessels. Our own opinion is that it proceeds from both these sources, but mainly from the womb. Borrowing the language of another, the unequal separation of the uterus and placenta prevents regular uterine contractions; hence, the large vessels of the exposed uterine surface pour out their blood, and relief is effected by a total separation, and a consequent regular and general contraction of the organ closing up their bleeding mouths.

In conclusion, it is proper to remark that, in the preparation of this paper, we have been influenced by no partialities in favor of any particular measures, but have sought to give a faithful and honest interpretation of the facts presented. Some errors of refer-

ence to particular cases may have crept in, but the numerical results are believed to be correct.

A portion of the *results* of the tables may be regarded by some as more curious than practical; but the object in presenting such has been to afford a test of the correctness of others which are of practical value, inasmuch as the greater the number of instances in which we can show a correspondence of particular statements with general experience, or with other statistics, the greater the confidence we may place in the results as a whole, or on points upon which there has hitherto been a difference of opinion. It has probably surprised the reader, as well as ourselves, that cases collected from such a variety of sources, many of them very imperfect in detail, some supplying a fact under one head and some under another, should show a harmony of result as a whole. It is in accordance with the constancy which we look for in the general history of diseases and accidents, as well as in the other operations of nature, which, however irregular and uncertain they may appear, are regulated by laws which, unseen in the case of individuals, become more or less apparent when we consider large numbers. Upon our confidence in this uniformity the whole fabric of vital statistics is based. In not a single instance have our cases yielded to our queries an answer contrary to experience, though doubtless not always affording the exact numerical proportions between groups or classes which probably exist.

We have sought, by a thorough analysis of all the important circumstances connected with this accident, under ordinary modes of delivery, to establish a standard by which the results of other methods of treatment may be compared. We have tested by it the results of spontaneous and of artificial separation of the placenta, and have exhibited the different conditions under which the separation is effected in these two classes. Imperfect as the knowledge thus obtained must confessedly be, the results of our inquiries are submitted to the profession, with the belief that they are a step towards obtaining a more intimate acquaintance with the natural history of the accident, and with the effects of treatment.

PLAN OF ORGANIZATION

OF THE

AMERICAN MEDICAL ASSOCIATION.

PLAN OF ORGANIZATION.

REGULATIONS.

I. TITLE OF THE ASSOCIATION.

THIS institution shall be known and distinguished by the name and title of "THE AMERICAN MEDICAL ASSOCIATION."

II. MEMBERS.

The members of this institution shall collectively represent and have cognizance of the common interests of the medical profession in every part of the United States; and shall hold their appointment to membership either as delegates from local institutions, as members by invitation, or as permanent members.

The Delegates shall receive the appointment from permanently organized medical societies, medical colleges, hospitals, lunatic asylums, and other permanently organized medical institutions of good standing in the United States, and from the American Medical Society in Paris. Each delegate shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Association.

Each local society shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half of this number. The faculty of every regular constituted medical college, or chartered school of medicine, shall have the privilege of sending two delegates. The professional staff of every chartered or municipal hospital containing a hundred inmates or more, shall have the privilege of sending two delegates; and every other permanently organized medical institution of good standing shall have the privilege of sending one delegate.

Delegates representing the medical staffs of the United States Army and Navy, shall be appointed by the Chiefs of the Army and Navy Medical Bureaux. The number of delegates so appointed shall be four, from the army medical officers, and an equal number from the navy medical officers.

The Members by Invitation shall consist of practitioners of reputable standing, from sections of the United States not otherwise represented at the meeting. They shall receive their appointment by invitation of the meeting, after an introduction from any of the members present, or from any of the absent permanent members. They shall hold their connection with the Association until the close of the annual session at which they are received; and shall be entitled to participate in all its affairs, as in the case of delegates.

The Permanent Members shall consist of all those who have served in the capacity of delegates, and of such other members as may receive the appointment by unanimous vote.

Permanent members shall at all times be entitled to attend the meetings, and participate in the affairs of the Association, so long as they shall continue to conform to its regulations, but without the right of voting; and when not in attendance, they shall be authorized to grant letters of introduction to reputable practitioners of medicine residing in their vicinity, who may wish to participate in the business of the meetings, as provided for members by invitation.

Every member elect, prior to the permanent organization of the annual meeting, or before voting on any question after the meeting has been organized, must sign these regulations, inscribing his name and address in full, specifying in what capacity he attends, and, if a delegate, the title of the institution from which he has received his appointment.

III. MEETINGS.

The regular meetings of the Association shall be held annually, and commence on the first Tuesday in May. The place of meeting shall never be the same for any two years in succession, and shall be determined for each next succeeding year by vote of the Association.

IV. OFFICERS.

The officers of the Association shall be a President, four Vice-Presidents, two Secretaries, and a Treasurer. They shall be nomi-

nated by a special committee of one member from each State represented at the meeting, and shall be elected by vote on a general ticket. Each officer shall hold his appointment for one year, and until another is elected to succeed him.

The President shall preside at the meetings, preserve order and decorum in debate, give a casting vote when necessary, and perform all the other duties that custom and parliamentary usage may require.

The Vice-Presidents, when called upon, shall assist the President in the performance of his duties, and, during the absence, or at the request of the President, one of them shall officiate in his place.

The Secretaries shall record the minutes, and authenticate the proceedings, give due notice of the time and place of each next ensuing annual meeting, and serve as members of the Committee of Publication. The Secretary first in nomination shall also preserve the archives and unpublished transactions of the Association.

The Treasurer shall have the immediate charge and management of the funds and property of the Association. He shall be a member of the Committee of Publication, to which committee he shall give bonds for the safe keeping, and proper use and disposal of his trust. And through the same committee he shall present his accounts, duly authenticated, at every regular meeting.

V. STANDING COMMITTEES.

The following standing committees, each composed of seven members, shall be organized at every annual meeting, for preparing, arranging, and expediting business for each next ensuing year, and for carrying into effect the orders of the Association not otherwise assigned—namely, a Committee of Arrangements, and a Committee of Publication.

The Committee of Arrangements shall, if no sufficient reasons prevent, be mainly composed of members residing in the place at which the Association is to hold its next annual meeting; and shall be required to provide suitable accommodations for the meeting, to verify and report upon the credentials of membership, to receive and announce all essays and memoirs voluntarily communicated, either by members of the Association, or by others through them, and to determine the order in which such papers are to be read and considered.

The Committee of Publication, of which the Secretaries and Trea-

surer must constitute a part, shall have charge of preparing for the press, and of publishing and distributing such of the proceedings, transactions, and memoirs of the Association, as may be ordered to be published. The six members of this committee, who have not the immediate management of the funds, shall also in their own names as agents for the Association, hold the bond of the Treasurer for the faithful execution of his office, and shall annually audit and authenticate his accounts, and present a statement of the same in the annual report of the Committee; which report shall specify the character and cost of the publications of the Association during the year, the number of copies still at the disposal of the meeting, the funds on hand for further operations, and the probable amount of the assessment to be laid on each member of the Association for covering its annual expenditures.

VI. FUNDS AND APPROPRIATIONS.

Funds shall be raised by the Association for meeting its current expenses and awards from year to year; but never with the view of creating a permanent income from investments. Funds may be obtained by an equal assessment of not more than three dollars annually, on each of the members; by individual voluntary contributions for specific objects; and by the sale and disposal of publications, or of works prepared for publication.

The funds may be appropriated for defraying the expenses of the annual meetings; for publishing the proceedings, memoirs, and transactions of the Association; for enabling the standing committees to fulfil their respective duties, conduct their correspondence, and procure the materials necessary for the completion of their stated annual reports; for the encouragement of scientific investigations, by prizes and awards of merit; and for defraying the expenses incidental to specific investigations under the instruction of the Association, where such investigations have been accompanied with an order on the Treasurer to supply the funds necessary for carrying them into effect.

VII. PROVISION FOR AMENDMENTS.

No amendment or alteration shall be made in any of these articles, except at the annual meeting next subsequent to that at which such amendment or alteration may have been proposed; and then

ance.

And, in acknowledgment of having adopted the foregoing propositions, and of our willingness to abide by them, and use our endeavors to carry into effect the objects of this Association, as above set forth—we have hereunto affixed our names.

NAMES OF MEMBERS.	RESIDENCE.	INSTITUTIONS REPRESENTED.

In connection with the foregoing "Plan of Organization," the following was adopted as one of the ordinances, or by-laws of the Association, viz:—

THE ORDER OF BUSINESS.

The order of business at the annual meetings of the American Medical Association shall at all times be subject to the vote of three-fourths of all the members in attendance; and until permanently altered, except when for a time suspended, it shall be as follows, viz:—

1. The temporary organization of the meeting preparatory to the election of officers.
2. The report of the Committee of Arrangements on the credentials of members; after the latter have registered their names and addresses, and the titles of the institutions which they represent.
3. The calling of the roll.
4. The election of officers.
5. The reading of minutes.
6. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.
7. The reception of members by invitation.
8. The reading and consideration of the stated annual reports from the standing committees.

9. The selection of the next place of annual meeting.

10. The new appointments to fill the standing committees.

11. The choice of permanent members by vote.

12. Resolutions introducing new business, and instructions to the permanent committees.

13. The reading and discussion of voluntary communications introduced through the Committee of Arrangements.

14. Unfinished and miscellaneous business.

15. Adjournment.

ORDINANCES.

The following *Resolutions*, adopted at different meetings of the Association, though not incorporated into the *Plan of Organization*, constitute a portion of the *Regulations* for the government of the Association.

RESOLUTIONS ADOPTED AT THE FOURTH ANNUAL MEETING, HELD IN CHARLESTON, IN 1851.

(See TRANSACTIONS, vol. iv.)

Resolved, That committees of three be appointed to investigate and report, severally, on the following subjects:—

1st. Causes of tubercular diathesis.

2d. Blending and conversion of the types of fever.

3d. The mutual relations of yellow fever and bilious remittent fever.

4th. Epidemic erysipelas.

5th. Acute and chronic diseases of the neck of the uterus.

6th. Dengue.

7th. The milk sickness so called.

8th. Endemic prevalence of tetanus.

9th. Diseases of parasitic origin.

10th. Physiological peculiarities and diseases of the Negro.

11th. The action of water on lead pipes, and the diseases which proceed from it.

12th. The alkaloids which may be substituted for quinia.

13th. Permanent cure of reducible hernia.

14th. Results of surgical operations for the relief of malignant diseases.

15th. Statistics of operations for removal of stone in the bladder.

16th. Cold water dressings.

17th. The sanitary principles applicable to the construction of dwellings.

18th. The toxicological and medicinal properties of our cryptogamic plants.

19th. Agency of the refrigeration produced through upward radiation of heat as an exciting cause of disease.

20th. Epidemic diseases of New England and New York.

21st. Epidemic diseases of Pennsylvania, New Jersey, Delaware, and Maryland.

22d. Epidemic diseases of Virginia and North Carolina.

23d. Epidemic diseases of South Carolina, Georgia, Florida, and Alabama.

24th. Epidemic diseases of Mississippi, Louisiana, Texas, and Arkansas.

25th. Epidemic diseases of Tennessee and Kentucky.

26th. Epidemic diseases of Missouri, Illinois, Iowa, and Wisconsin.

27th. Epidemic diseases of Indiana, Ohio, and Michigan.

Resolved, That a Committee on Nomination be appointed, whose duty it shall be to nominate one chairman for each of the above committees.

Resolved, That each of the chairmen thus nominated, shall select, at his earliest convenience, two members of the Association, to complete the committee.

Resolved, That a committee of five members be appointed, to be called the Committee for Volunteer Communications,* whose duty it shall be, in the interval between the present and the next succeeding sessions, to receive papers upon any subject, from any persons who may choose to send them, to decide upon the merits of these papers, and to select for presentation to the Association, at its next session, such as they may deem worthy of being thus presented.

Resolved, That the Committee for Volunteer Communications shall have the power to form such regulations as to the mode in which the papers are to be presented, and as to the observing of secrecy, as they may think proper.

Resolved, That the selection of the members of this committee be referred to the same Nominating Committee, whose duty it will be to appoint the chairmen of the several special committees, as above directed, with this restriction, that the individuals composing it shall reside in the same neighborhood.

Resolved, That a prize of fifty dollars† be awarded to each of the

* The title of this Committee was changed by a resolution adopted at the Sixth Annual Meeting to that of "*Committee on Prize Essays.*" See vol. vi. p. 47.

† By a Resolution adopted at the Fifth Annual Meeting, the number of prizes was reduced to *two*, and the amount of the prizes increased to *one hundred dollars.* See vol. v. p. 45.

volunteer communications reported on favorably by the committee, and directed by the Association to be published, provided that the number to which the prize is thus awarded, do no exceed five;* and provided, also, if the number approved and directed to be published exceed five, that, in such case, the prize be awarded to the five which the committee may determine to be most meritorious (pp. 36—38).

Resolved, That the Committee of Publication be instructed to print, conspicuously, at the beginning of the forthcoming volume of the *Transactions*, the following disclaimer, viz: The American Medical Association, although formally accepting, and publishing the reports of the various standing committees, holds itself wholly irresponsible for the opinions, theories, or criticisms therein contained, except when so decided by special resolution (p. 39).

RESOLUTIONS ADOPTED AT THE FIFTH ANNUAL MEETING, HELD IN RICHMOND, IN 1852.

(See TRANSACTIONS, vol. v.)

Resolved, That the special committees on Medical Education, and Medical Literature, be appointed, consisting each of five members, and that the Nominating Committee be instructed to nominate such committees to this Association (p. 32).

Resolved, That, instead of awarding five prizes of $50 each, annually, the Association hereafter grant two prizes of $100 each, for the two best essays (p. 45).

RESOLUTIONS ADOPTED AT THE SIXTH ANNUAL MEETING, HELD IN NEW YORK, IN 1853.

(See TRANSACTIONS, vol. vi.)

Resolved, That the Committee of Publication have power to furnish the chairmen of committees on epidemics with extra copies of their reports, respectively, at the expense of the Association—the said extra copies not to exceed one hundred (p. 28).

Resolved, That the name of the Committee on Volunteer Communications be changed to that of Committee on Prize Essays (p. 47).

* See note preceding page.

RESOLUTIONS ADOPTED AT THE SEVENTH MEETING, HELD IN ST. LOUIS.

(See TRANSACTIONS, vol. vii.)

Resolved, That the sum of three dollars, annually, be assessed upon each of the delegates to the sessions of the Association, as well as upon each of its permanent members, for the purpose of raising a fund to defray the expenses of printing the *Transactions*. The payment of this assessment shall be required of the delegates and members in attendance upon the sessions of the Association, previously to their taking their seats and participating in the business of the session; and of all others on or before the first of September in each year.

Resolved, That each delegate and member who has paid his annual assessment, in accordance with the terms of the above resolution, shall be entitled to receive a copy of the printed *Transactions* of the session.

Resolved, That the name of no one shall be inserted or continued on the list of permanent members of the Association who shall refuse or neglect to pay his annual assessment, in accordance with the terms of the first resolution, but it shall be the duty of the Treasurer, before erasing the name of any member, to issue a circular informing him of his indebtedness.

Resolved, That it shall be the duty of the Committee of Publication to fix the price at which the printed *Transactions* of each session will be furnished to others than delegates and members; provided, that in no case shall the said price be less than three dollars.

Resolved, That the delegates to the Association be requested to appoint committees, at one or more central points within their respective States, for the purpose of aiding the Committee of Publication in procuring subscribers, and in distributing the printed volumes of *Transactions* to said subscribers, as well as to the members of the Association residing within the neighborhood of the said committees, respectively (p. 22).

Resolved, That a standing committee be appointed by this Association to procure memorials of the eminent and worthy dead among the distinguished physicians of our country, and present them to this Association for publication in their *Transactions* (p. 30).

Resolved, That a standing committee of ———members be appointed by this Association, on the subject of Insanity, as it pre-

vails in this country, including its causation—as hereditary transmission; educational influences—physical and moral, social and political institutions, &c.; its forms and complications; curability; means of prevention, &c. (p. 32).

Resolved, That it shall be the duty of the Publication Committee to append to each volume of the *Transactions*, hereafter published, a copy of the Constitution of the Association (p. 34).

Resolved, That, hereafter, every paper received by this Association and ordered to be published, and all plates or other means of illustration, shall be considered the exclusive property of the Association, and shall be published and sold for the exclusive benefit of the Association (p. 40).

Resolved, That, hereafter, the majority of the Committee of Publication shall be selected from the physicians of that city in which this Association may hold its annual session (p. 41).

Resolved, That it is the duty of every member of this Association, who learns that any existing medical school departs from the published conditions of graduation, to report the fact at the annual meetings; and that on proof of the fact, such school shall be deprived of its representation in this body (p. 43).

RESOLUTIONS ADOPTED AT THE EIGHTH MEETING, HELD IN PHILADELPHIA, 1855.

(See TRANSACTIONS, vol. viii.)

Resolved, That no permanent member, who is not present at a meeting of the Association, shall be required to pay the annual assessment; but no such permanent member shall be entitled to receive a copy of the printed *Transactions* unless he pay into the treasury a sum not less than the annual assessment paid by the delegates and permanent members in attendance; and that all the names of permanent members that have been left off the published list, be reinserted therein in the next volume of *Transactions*.

Resolved, That no assessment whatever shall be made against members by invitation, but that they also shall be entitled to a copy of the printed *Transactions* by paying the sum assessed upon delegates in attendance (p. 29).

Resolved, That hereafter, beginning with the session for 1856, no report or other paper shall be entitled to publication in the volume for the year in which it shall be presented to the Association,

unless it be placed in the hands of the Committee of Publication on or before the first of June (p. 36).

Resolved, That all reports on the Medical Topography and Prevailing Diseases of the Different States, in order to entitle them to be received and published in the *Transactions* of this Association, shall first be approved by the Medical Societies of the State or Territory (where such societies exist), to which such reports respectively pertain (p. 44).

Resolved, That no State or local society shall hereafter be entitled to representation in this Association, that has not adopted its Code of Ethics.

Resolved, That no State or local society that has intentionally violated or disregarded any article or clause in the Code of Ethics, shall any longer be entitled to representation in this body (p. 56).

Resolved, That no organization or institution, entitled to representation in this Association, shall be considered in good standing, which has not adopted its Code of Ethics (p. 60).

RECEPTION

OF THE

AMERICAN MEDICAL ASSOCIATION,

AT

INDEPENDENCE HALL,

PHILADELPHIA, MAY 2, 1855.

RECEPTION.

At twelve o'clock M., May 2d, the members of the American Medical Association, comprising above five hundred gentlemen, passed in procession through the Independence Square, and entered Independence Hall. A number of ladies were already present, and the Hall was soon crowded to its utmost extent.

Dr. Isaac Hays, of Philadelphia, in behalf of the Medical Association, introduced the members in the following address:—

ADDRESS OF DR. ISAAC HAYS.

Mr. Mayor:—

I have the gratification of introducing to your Honor the Members of the American Medical Association—our National Medical Congress. This Association was organized, in our city, eight years ago, and has met annually since in one of the principal cities of the Union. It is composed of delegates from the Medical Societies and Colleges, Hospitals, and other Medical Institutions throughout our country. It was instituted with no selfish views, but to accomplish objects of the greatest importance to the public at large: to improve the healing art, and increase its powers for alleviating human suffering. It strives to attain these ends by securing more complete and thorough courses of instruction to students, and by raising the standard of requirements of those admitted into the ranks of the profession; by investigating the causes of the diseases which prevail in certain localities, and by seeking the way by which these causes may be removed, or their effects counteracted; by collecting reliable histories of the different epidemics, which from time to time spread over our country, and by endeavoring to discover the means of arresting their progress; by offering prizes for the most useful

measure tending to enlarge the boundaries of our science or increase the efficiency, and augment the usefulness of our art.

In pursuance of these objects the Association has assembled this year in our city, and we feel deeply grateful to you for your courtesy in inviting us to visit this place, so venerated by every American heart.

The philanthropy of our profession is not restricted to the cure of disease—it has a larger range; it embraces within its scope whatever tends to the improvement of our mental or moral condition, or even to confer "the greatest good upon the greatest number." Hence the profession have never been indifferent to national objects; on the contrary, they flatter themselves that they have not been behind any other class of the community in patriotism, but that they have been always prompt to serve their country, not only in their professional capacity, but also by their council in the Cabinet, and even by taking up arms for her defence in the field.

I *need not* remind your honor that the most illustrious physician of his day, in this country, the late Dr. Rush, was a member of the Congress of '76, and affixed his name to the Declaration of Independence; or that General Joseph Warren, one of the most eminent physicians of Boston, contributed by his eloquence to rouse his townsmen to resist the oppressive acts of the mother country, and shed his life's blood on Bunker Hill in defence of liberty; or that his younger brother, Dr John Warren, animated by the same spirit, volunteered as a private soldier; nor need I refer you to other examples of a similar character. But I *may* assure you that the spirit which animated our ancestors, if it appear dormant, is not extinct in our bosoms, and that while standing on this spot—sacred to Human Liberty—we experience emotions kindred to those which the inspired Law-giver must have felt when he heard the voice calling to him out of the midst of the burning bush: "Put off thy shoes from off thy feet, for the place whereon thou standest is holy ground."

REPLY OF MAYOR CONRAD.

MR. CHAIRMAN OF THE COMMITTEE OF ARRANGEMENTS:—

I thank you in the name of the community which I have the honor to represent, for your eloquent introduction of our friends to the authorities of the city, and to this the Hall of Independence.

GENTLEMEN OF THE AMERICAN MEDICAL ASSOCIATION:—

I am proud of the privilege of extending to you, in the name of the government and of the people of Philadelphia, a most cordial welcome.

I bid you welcome to our city—a city which, deriving a cherished distinction from the profession which you adorn, is eager, now and ever, to requite it, in her tribute of respect for its professors. I welcome you to our people, whose intercourse, for many a year, with you or your brethren, has inspired a feeling which, reserved as we are sometimes said to be, will, I doubt not, burst into earnest and unambiguous expression before you leave us.

I welcome you, gentlemen, to this Hall, but not as strangers or the sons of strangers—for it is your own. As the temple and territory of Delphos, in the wildest domestic perturbations of Greece, afforded one sacred area over which the cloud of discord never gathered, one altar whose worship was never invaded, this spot, consecrated to our common American glory, knows no lines of latitude, and belongs, in truth, no more to us, whose peculiar privilege it is to inherit its guardianship, than to our brothers—*to you.* In coming hither, therefore, you *come home.* These precincts have been hallowed, for all time, by the heroic virtues of your and our fathers. This is the fountain from the which the living waters of American liberty were first drawn, and it is therefore most sacred—(woe to the generation in which it ceases to be sacred!)—but, like the well of the Patriarch, all the tribes of Liberty's Israel own here an equal right, and owe here an equal homage.

In no sense, then, can I greet you as strangers—for yours are names familiar to every American proud of the science of his country; and those who are united, by this association, in a cause so lofty as that eloquently characterized by your Chairman, may not only claim the universal and acknowledged privileges of the Republic of minds, but the rights of a nearer and a dearer charter,

the Brotherhood of beneficence—the kindred claims of noble hearts, knit in the highest and holiest of human aspirations. In this spirit, with the most fervent and fraternal sentiments of respect and regard, I greet and welcome you.

You are right, Mr. Chairman, in claiming, amid the associations which hallow these precincts, a peculiar privilege for your profession—a profession which not only sprinkled, with the earliest sacrificial blood of the Revolution, the highest altar upon which Valor vowed and dedicated our country to freedom—I refer as you have referred, to Dr. Warren and Bunker Hill—but which in every struggle for the enlargement and enlightenment of human destinies, has been eminently distinguished for courage, zeal, and fidelity to the rights of man. You have, therefore, a peculiar right to claim kindred here, and have that claim allowed; and within these walls, which witnessed the zeal of Rush, it would be a treason to virtue to forget, that one of the lights of your profession shed glory upon the solemn debates of this hall, and was foremost amongst those that bade yonder bell* (preserved and devoted to the veneration of posterity), with its iron tongue, to PROCLAIM LIBERTY THROUGHOUT ALL THE LAND, TO ALL THE INHABITANTS THEREOF.

It is the glorious peculiarity of your profession that, while Ambition, in its ordinary and most applauded paths, plays the part of the *destroyer*, and wins glory at the expense of human life and happiness, you and yours, with a more exalted civilization, a nobler heroism, have ever *sought to save.* Next to the highest of all human courage—if, indeed, it be merely *human*—that of the martyrs of religious truth—the courage of the physician, whether on the battle-field or in the lazar-house, the courage of science and humanity, is most sublime, and best entitled to the *clarum et venerabile nomen.* The vulgar courage of the warrior, under the base stimulus of passion, or the low greed of applause, can hardly be compared to the noble intrepidity of the surgeon, who gleans, in the ruthless and red-handed reaper's path, the leavings of the battle; and still less with the hero of the hospital, who encounters the grim antagonist in the horrid silence and gloom of the pestilence.

* *The Liberty Bell.*—This is the bell which was rejoicingly rung, from the steeple of the old State House, when the Declaration of Independence was originally read, in July, 1776, to the thousands assembled in the State House yard, now Independence Square. Upon this bell—cast long before the Revolution, and brought from England in the colony times—are the prophetic words of Scripture quoted—"Proclaim liberty throughout all the land, to all the inhabitants thereof."

Imagination can hardly embody an instance of human courage and virtue more sublime and unearthly than that of the physician, who in the midnight of a plague-stricken city, thrids the fetid solitudes of its alleys, and, entering the devoted hovel of the wretched, ministers—while only Pestilence and Misery, Death and God look on —to the perishing. I need not step from this spot to grasp the hand of many a hero who claims no laurel—many a noble philanthropist whose sacred labors, in scenes like these, have been unmarked, save by the Eye that never slumbers, and remembered only by him who alone can reward.

To such a profession, one venerable from its antiquity, noble from the grandeur of its objects, illustrious from its achievements, and which demands every aid and energy of genius and science, of head and heart, that dignifies the race, it is not strange that, go where it may, a ready homage meets and a ready blessing attends it. In our own city, all that is noblé in patriotism, all that is exalted in science, all that is bright and beautiful in the arts which refine society, all that is lovely and cherished and holy in private life, combine to render the profession sacred and dear to us.

There are few living to whom some one death in the past is not the sole event and solitary memory of the survivor's life— to him a lonely pyramid in the melancholy desert; and to such a mind and memory, *the debt of the death-bed*, where science, rendered holy by its office, ministered, though never paid, is never repudiated. I never knew a good man, still less a good woman, who had not such a debt—a debt which bankrupt gratitude cherished with its holiest affections and sanctified with its devoutest memories.

In these times, when the omnipotence of associated effort is invoked for so much that is of dubious merit, it is a gratifying spectacle to behold the enlightened professors of the most exalted of all arts—men sage and grave, unselfish and unaspiring—forsaking the homes to which they are bound by the affections and the afflictions of thousands, by wealth, and fame, and influence, to wander, wearily, away upon a pilgrimage of hundreds of leagues, in the cause and interests of the human family, its security, health, and happiness. For more than ten years, the representatives of your profession have thus gathered in Convention. What other body of our citizens have made a like effort—a like sacrifice? Selected from the most eminent of the profession, the delegates have been men whose years, like their virtues, were many. How difficult must have been, to them, the effort to burst through the bonds of a relying and

clinging practice! How great the labor, and how heavy the sacrifice! They have already visited, in this duty, the cities of every section of our wide country. How many have fallen by the wayside? How many martyrs could you not thus number in this cause? How many of the good and great of the profession have, in these benevolent pilgrimages, joined the ranks of the thousands who have sacrificed themselves, at the requisitions of duty, as recognised and enforced by your self-imposed laws—joining the dead in the effort to aid the living? The epitaph of the Spartans at Thermopylæ might well commemorate the virtues and the fate of these martyrs. But if the cost has been great, the results have been commensurate.

Of the professional advantages attained, though I know them to be invaluable, I will not presume to speak; but I may be permitted to state, as health is the most important subject of municipal provision and care, that the *Transactions* of the Association, which I have examined with great interest, comprise much that merits the attention, and will reward the respectful consideration, of the municipal governments of the Union.

It is natural that Philadelphia should feel, as she does feel, a profound interest in the cause of medical education in this country. She cannot, of course, forget that it was here that the first medical college was established in this country; that its merits and success extorted a reluctant transatlantic tribute of admiration: and that, progressing rapidly, but wisely, it achieved and maintained an equality with the most celebrated institutions of the Old World. As the cause of medical education has expanded, and institutions worthy of the cause and the country have sprung up, each triumph, thus attained, has been regarded here as the successful outbursting of an offshoot from the primary effort; and Philadelphia, while rejoicing in the expansion and elevation of medical education throughout the land, has almost fancied—so earnest is her interest in medical education—that she had a right to indulge a *parental* pride in all that advances that interest.

These genial feelings have been maintained, in all their early and fervid freshness, by constant intercourse with all sections of our country. The ingenuous and gallant youths that have come hither for medical instruction have, in their unstudied intercourse, exhibited the character of their respective States in a light so generous and exalted as to win our affections, not only for themselves, but for the communities and States which could exult in them as

their own. Winter after winter, we have had many hundreds of these noble young spirits among us. And let me remark that, rigorous as I am said to be in the administration of the law, I have yet to know the first occasion to rebuke, much less to punish, a medical student. We have found them as gentle and decorous in their deportment, as they are exalted in their aspirations; and had Philadelphia—eminently catholic in her affection for her sister communities—needed a lesson of love and loyalty, these high-hearted missionaries would have taught it. This interchange of sympathies has endured for the third of a century—may it last forever! The youths—youths no longer—who formerly bore those sentiments to the remote sections of our republic, stand before me now as the reverend sages and ornaments of their profession, meeting here the evidences of a reputation which had preceded them, and has long been cherished by us. And who can tell what have been the results of this kindly interchange of kindly feelings? It has doubtless been felt in every commercial, social, and political, relation of life, correcting the prejudices, harmonizing the discords, and subduing the dangers of our common country.

We realize these facts. We recognize, in the members of an enlightened profession like yours, so many patriots and philanthropists, engaged in the great and general interests of the human race; and, apart from the mere scientific acquisitions of your annual meetings, we perceive in them results auspicious to all that we cherish, all that is kindly, forbearing, and conservative, between man and man, party and party, State and State, section and section; and, so regarding them, we hail and greet you with a welcome as sincere and cordial as the heart can conceive, or the tongue can utter.

OFFICERS

AND

PERMANENT MEMBERS.

CATALOGUE

OF THE

OFFICERS AND PERMANENT MEMBERS

OF THE

AMERICAN MEDICAL ASSOCIATION.

OFFICERS FOR 1855–'56.

PRESIDENT.

GEORGE B. WOOD, *Pennsylvania.*

VICE-PRESIDENTS.

W. H. BOLING, *Alabama.*
D. HUMPHREYS STORER, *Massachusetts.*
DANIEL TILDEN, *Ohio.*
GRAFTON TYLER, *District of Columbia.*

SECRETARIES.

FRANCIS WEST, *Philadelphia.*
WM. BRODIE, *Michigan.*

TREASURER.

CASPAR WISTER, *Philadelphia.*

PERMANENT MEMBERS.

Those who have an obelisk [†] prefixed to their names are dead.

MAINE.

Bartlett, Ezra	*South Berwick.*
Chase, Sumner B.	*Portland.*
Dickinson, J. P.	*Bangor.*
Emerson, N.	*Orland.*
Fessenden, C. S. D.	*Portland.*
Fuller, A. J.	*Bath.*
Garcelon, Alonzo	*Lewiston.*
Lincoln, Isaac	*New Brunswick.*
McKeen, James	*Topsham.*
McRuer, D.	*Bangor.*
Millet, Charles	*Lewiston, Androscoggin Co.*
Monroe, N. P.	*Belfast.*
Oakes, Sylvester	*Auburn.*
Page, A. F.	*Hancock.*
Page, H. N.	*Penobscot.*
Palmer, G. S.	*Gardner.*
Stockbridge, T. G.	*Bath.*
Weston, J. C.	*Bangor.*

NEW HAMPSHIRE.

Abbott, James B.	*Sanbornton.*
†Bartlett, Josiah	*Stratham.*
Batchelder, Daniel H.	*Londonderry.*
Batcheller, James	*Marlborough.*
Boyden, F.	*Hinsdale.*
Brown, Thomas	*Manchester.*
Buck, W. D.	*do.*
Carr, Alonzo F.	*Goffstown.*
Carr, John	*Sanbornton.*
Carter, Ezra	*Concord.*
Crosby, Dixi	*Hanover.*
Crosby, Josiah	*Manchester.*
Crosby, T. R.	*do.*

Danforth, James	*New Boston.*
Dickey, Abraham O.	*Lyme.*
Eastman, Josiah C.	*Hampstead.*
Eaton, Harrison	*Merrimack.*
Fernald, John S.	*Barrington.*
Fitch, Francis P.	*Amherst.*
French, John O.	*Chesterfield.*
Gage, Charles P.	*Concord.*
Garland, G. W.	*Meredith Bridge.*
Graves, Josiah G.	*Nashville.*
Hamilton, Cyrus B.	*Lyme.*
Haynes, Timothy	*Concord.*
Hill, Levi G.	*Dover.*
Hoyt, Enos	*Framingham.*
Kelley, S. B.	*Franklin.*
Marshall, Thomas H.	*Mason Village.*
Martin, Noah	*Dover.*
Parker, D. T.	*Farmington.*
Peaslee, Edmund R.	*Hanover.*
Prescott, William	*Concord.*
Sanborn, Nathan	*Henniker.*
Sargent, J. F.	*Concord.*
Savory, Charles A.	*Hopkinton.*
Smalley, Adoniram	*Lyme, Grafton Co.*
Smith, Albert	*Peterborough.*
Smith, Joseph H.	*Dover.*
Spaulding, Edward	*Nashua.*
Stackpole, P. A.	*Dover.*
Stone, W. P.	*Danbury.*
†Twitchell, Amos	*Keene.*
Twitchell, George B.	*do.*
Webster, E. R.	*Boscawen.*
Woodbury Peter P.	*Bedford.*

VERMONT.

Allen, C. L.	*Middlebury.*
Babcock, M. N.	*Fairfield.*
Bancroft, J. P.	*St. Johnsbury.*
Bass, Zacheus	*Middlebury.*
Brown, H. B.	*Hartford.*

Burnham, Z. P.	*Montpelier.*
Carpenter, W.	*East Randolph.*
Carr, Ezra T.	*Castleton.*
Chandler, Charles B.	*Tunbridge.*
Clark, C.	*Montpelier.*
Cleaveland, Charles H.	*Castleton.*
Converse, Shubael	*Norwich.*
Cushman, Earl	*Orwell.*
Dana, A. G.	*Brandon.*
Drew, O. W.	*Waterbury.*
†Hall, Charles	*Burlington.*
Hatch, Horace	*do.*
Higginson, Francis J.	*Brattleboro'.*
Hinckley, I.	*Thetford.*
Jewett, Calvin	*St. Johnsbury.*
Morse, James R.	*Chelsea.*
Newell, Selim	*Lyndon.*
Niles, H. H.	*Thetford.*
Perkins, Joseph	*Castleton.*
Phelps, Edward E.	*Windsor.*
Pitkin, A. S.	*Burlington.*
Pittman, N. J.	*Brattleboro'.*
Ranney, W. R.	*Townshend.*
Rockwell, W. H.	*Brattleboro'.*
Smith, Orrin	*Montpelier.*
Spalding, James	*do.*
Stiles, J. N.	*Strafford.*
Story, Dyer	*West Windsor.*
Washburn, Cyrus	*Vernon.*
Woodward, A. J.	*Castleton.*
Worcester, E. C.	*Thetford.*

MASSACHUSETTS.

Abbott, Samuel L.	*Boston.*
Adams, Horatio	*Waltham.*
Adams, Nathan	*Springfield.*
Adams, Z. Boylston	*Boston.*
Agassiz, Louis	*Cambridge.*
Ainsworth, F. S.	*Boston.*
Alden, Ebenezer	*Randolph.*
Allen, Nathan	*Lowell.*

Alley, J. B.	*Boston.*
Bacon, jr., John	*do.*
Bancroft, Amos B.	*Groton.*
Bartlett, George	*Boston.*
Bartlett, Josiah	*Concord.*
Bartlett, Lyman	*New Bedford.*
†Batcheller, Stephen	*Royalston.*
Bates, Joseph N.	*Barre.*
Bell, Luther V.	*Somerville.*
Bemis, David	*Chickopee.*
Bemis, Jonathan W.	*Charlestown.*
Bethune, George A.	*Boston.*
Bigelow, Henry J.	*do.*
Bigelow, Jacob	*do.*
Blake, E. W.	*do.*
Blake, Jeremiah	*Lowell.*
Blake, J. E.	*Boston.*
Borland, J. Nelson	*do.*
Boutelle, Thomas R.	*Fitchburgh.*
Bowditch, Henry J.	*Boston.*
Bridgman, William	*Springfield.*
Brown, Buckminster	*Boston.*
Brown, Jonathan	*Tewksbury.*
Buck, Ephraim	*Boston.*
Buckingham, Charles E.	*do.*
Burnap, S. G.	*Holliston.*
Cabot, jr., Samuel	*Boston.*
Carpenter, E. W.	*Chatham.*
Channing, Walter	*Boston.*
Chapman, T. L.	*Long Meadow.*
Chase, Charles	*Chelsea.*
Childs, H. H.	*Pittsfield.*
Choate, George	*Salem.*
Clark, Edward H.	*Boston.*
Clark, Henry G.	*do.*
Clarke, Moses	*East Cambridge.*
Coale, William E.	*Boston.*
Cogswell, George	*Bradford.*
Collins, Clarkson T.	*Great Barrington, Berkshire Co.*
Comstock, W. W.	*Wrentham.*
Cornell, W. M.	*Boston.*

Cornish, Aaron	*Falmouth.*
Cotting, B. E.	*Roxbury.*
Cox, jr., Benj.	*Salem.*
Crane, Phineas M.	*East Boston.*
Curtis, Josiah	*Lowell.*
Cutter, Benjamin	*Woburn.*
Cutter, Nehemiah	*Pepperell.*
Dale, William J.	*Boston.*
Dalton, John C.	*Lowell.*
Davis, R. T.	*Fall River.*
Dearborne, A. D.	*Upper Falls, Newton.*
Dickey, Hanover	*Lowell.*
Dix, John H.	*Boston.*
Eames, Ambrose N.	*Wrentham.*
Eastman, E. T.	*Boston.*
Ellis, Calvin	*do.*
Farnum, jr., J.	*Salem.*
Fay, Allen C.	*Milford.*
Fay, Chas.	*Charlton.*
Fearing, Elisha P.	*Nantucket.*
Fisk, Samuel A.	*Northampton.*
Fisk, Calvin P.	*Fiskdale.*
Flint, Edward	*Leicester, Worcester Co.*
Flint, John	*Boston.*
Folsom, Levi	*New Bedford.*
Forsyth, James B.	*Chelsea.*
Gay, George H.	*Boston.*
Gillman, B. F.	*Nantucket.*
Gordon, Charles	*Boston.*
Gordon, Timothy	*Plymouth.*
Gould, Augustus A.	*Boston.*
Graves, John W.	*Lowell.*
Green, John	*Worcester.*
Green, John O.	*Lowell.*
Guiteau, Coridon	*Lee.*
†Hale, Enoch	*Boston.*
Harpur, John	*Sandwich.*
Haskell, Benjamin	*Rockport.*
Hayden, Jno. C.	*Boston.*
Hayward, George	*do.*
Hayward, jr., George	*do.*

Heywood, B. F.	*Worcester, Worcester Co.*
Hitchcock, Alfred	*Fitchburgh, Worcester Co.*
Holmes, Christopher C.	*Milton, Norfolk Co.*
Holmes, Oliver W.	*Boston.*
Homans, John	*do.*
Homans, C. D.	*do.*
Hooker, Anson	*Cambridge.*
Hooker, Anson P.	*do.*
Hooper, Foster	*Fall River.*
Hooper, R. W.	*Boston.*
Hoovey, Daniel	*Greenfield, Franklin Co.*
Hosmer, Hiram	*Watertown.*
Howe, Zadoc	*Billerica.*
Howe, Appleton	*South Weymouth, Norfolk Co.*
Huntingdon, Elisha	*Lowell.*
Huse, Stephen	*Methuen.*
Inches, H. B.	*Boston.*
Jackson, James	*do.*
Jackson, Charles J.	*do.*
Jackson, J. B. S.	*do.*
Jackson, Woburn	*do.*
Jarvis, Edward	*Dorchester.*
Jeffries, John	*Boston.*
Jennings, Selden	*Richmond.*
Keep, N. C.	*Boston.*
Kimball, Gilman	*Lowell.*
Lambert, Alfred	*Springfield.*
Lamb, W. D.	*Lawrence.*
Leland, F.	*Milford.*
Leonard, Jonathan	*Sandwich.*
Lewis, Winslow	*Boston.*
Lovell, Ephraim W.	*Boylston.*
Lyman, George H.	*Boston.*
Mack, William	*Salem.*
Mackie, Andrew	*New Bedford.*
Metcalf, John George	*Mendon.*
Miller, E. D.	*Dorchester.*
Minot, Francis	*Boston.*
Monroe, A. LeB.	*Medway.*
Moore, E. B.	*Boston.*
Morland, William W.	*do.*

Morrill, Samuel	*Boston.*
Mowe, Daniel	*Lowell.*
Noyes, Josiah	*Needham P. O.*
Odin, jr., John	*Boston.*
Page, W. H.	*do.*
Palmer, E. D. G.	*do.*
†Parkman, George	*do.*
Parkman, Samuel	*do.*
Parks, jr., Luther	*do.*
Peck, William D.	*Sterling.*
†Pierson, A. L.	*Salem.*
Pierson, E. B.	*do.*
Perkins, Henry C.	*Newburyport.*
Perry, M. S.	*Boston*
Pierce, John	*Edgartown.*
Pilsbury, John D.	*Lowell.*
Pond, Benjamin	*Westborough.*
Poole, Alexander	*Dennis.*
Reynolds, Edward	*Boston.*
Reynolds, Joseph	*Gloucester.*
Richardson, Horace	*Boston.*
Robbins, James W.	*Uxbridge.*
Rook, O. S.	*Pittsfield.*
Root, Martin	*Byfield.*
Russell, Le Baron	*Boston.*
Salisbury, Stephen	*Brookline.*
Sargent, J.	*Worcester.*
Sargent, H.	*do.*
Savory, Charles A.	*Lowell.*
Shattuck, jr., George C.	*Boston.*
Shurtleff, Augustine	*Brookline.*
Shurtleff, Nathaniel B.	*Boston.*
†Smith, James M.	*Springfield.*
Smith, J. V. C.	*Boston.*
Snow, A. B.	*do.*
Spaulding, Miles	*Dunstable.*
Spooner, John P.	*Dorchester.*
Spooner, Paul	*New Bedford.*
Sprague, Seth L.	*Boston.*
Stedman, Charles H.	*do.*
Stimson, Jeremy	*Dedham.*

Stevens, William F.	*Stoneham.*
Stone, James W.	*Boston.*
Stone, Joseph	*Hardwick.*
Stone, Henry O.	*Boston.*
Storer, D. Humphreys	*do.*
Taylor, jr., Nathaniel W.	*Springfield.*
Thayer, W. Henry	*Boston.*
Thomas, A.	*Cambridge.*
Thomas, A. T.	*Boston.*
Townsend, S. D.	*do.*
Wales, Bradford L.	*Randolph.*
Ware, Charles E.	*Boston.*
Ware, John	*do.*
Ware, Jonathan	*Milton.*
Warren, John C.	*Boston.*
Warren, J. Mason	*do.*
Warren, jr., J. W.	*do.*
Wellington, T.	*West Cambridge.*
Wheeler, W. G.	*Chelsea.*
White, Vassel	*Curtisville P. O., Stockbridge, Berkshire Co.*
Whitney, Simon	*Framingham.*
Whitridge, W. C.	*New Bedford.*
Wilder, Charles W.	*Leominster.*
Wiley, Adams	*Roxbury.*
Willard, H.	*Boston.*
Williams, Stephen W.	*Deerfield.*
Woorland, William W.	*Boston.*
Workman, William	*Worcester, Worcester Co.*
York, Jasper H.	*Boston.*

RHODE ISLAND.

Allen, Hiram	*Woonsocket.*
Arnold, S. Augustus	*Providence.*
Ballou, A. W.	*do.*
Boker, Geo. P.	*do.*
Brown, W. O.	*do.*
Brownell, Richmond	*do.*
Capron, George	*do.*
Clapp, Sylvanus	*Pawtucket.*
Cleaveland, H.	*New Providence.*

Clifford, Lewis, W.	*Providence.*
Collins, George L.	*do.*
Dunn, Theophilus C.	*Newport.*
Eldridge, J. H.	*East Greenwich.*
Ely, James W. C.	*Providence.*
Fowler, Ezekiel	*Woonsocket Falls.*
King, David	*Newport.*
Le Prohon, E. P.	*Providence.*
Mauran, Joseph	*do.*
Miller, Lewis L.	*do.*
Parsons, Charles W.	*do.*
Parsons, Usher	*do.*
Pratt, H. P.	*do.*
Rivers, H. W.	*do.*
Snow, Ed. M.	*do.*

CONNECTICUT.

Barrows, Ashbel W.	*Hartford.*
†Beach, Samuel	*Bridgeport.*
Beardsley, Lucian N.	*Milford.*
Beardsley, Sheldon	*North Branford.*
Beckwith, Josiah G.	*Litchfield.*
Bennett, Hanford N.	*Bridgeport.*
Beresford, S. B.	*Hartford.*
Bishop, E. H.	*New Haven.*
†Bowen, Samuel	*Thompson.*
Bradford, Milton	*West Woodstock.*
Brigham, Norman	*North Mansfield.*
Bronson, Henry	*New Haven.*
Brownell, Clarence M.	*East Hartford.*
Budington, George E.	*New Haven.*
Burke, George W.	*Middletown.*
Burr, David S.	*Westport.*
Campbell, Harvey	*Voluntown.*
Canfield, Joel	*Guilford.*
†Carrington, Edwin W.	*Farmington.*
Casey, William B.	*Middletown.*
Castle, Andrew	*Woodbridge.*
Catlin, Benjamin H.	*West Meriden.*
Catlin, Samuel	*Watertown.*
Comings, B. N.	*New Britain.*

Dickinson, Francis L.	*Willington.*
Downes, John K.	*New Haven.*
Downing, Eleazer B.	*Preston.*
Ford, John D.	*Norwich.*
Fowler, Remus M.	*Washington.*
Haile, Ashbel B.	*Norwich.*
Hall, Eli	*East Hartford.*
Hammond, Justin	*Daysville.*
Harrison, David	*Middletown.*
†Hatch, Johnson C.	*Kent.*
Hawley, Roswell	*West Meriden.*
Hooker, Charles	*New Haven.*
Hooker, Worthington	*do.*
Hubbard, Robert	*Bridgeport.*
Hubbard, Stephen G.	*New Haven.*
Hutchins, Samuel	*West Killingly.*
Hutchinson, Ira	*Cromwell.*
Huxley, A. M.	*Goshen.*
Ives, Eli	*New Haven.*
Ives, Nathan B.	*do.*
Jarvis, George O.	*Portland.*
Jewett, Pliny A.	*New Haven.*
Knight, Jonathan	*do.*
Lindsley, Charles A.	*do.*
†Lyman, Norman	*Warren.*
Matthews, H. W. E.	*New Haven.*
Middlebrook, Elijah	*Trumbull.*
Nicall, John	*New Haven.*
Noyes, Samuel S.	*New Canaan.*
Nye, Elisha B.	*Middletown.*
Peters, Manly	*Woodville.*
Pierson, William S.	*Windsor.*
Pike, Nathan S.	*Sterling Hill.*
Platt, Gideon L.	*Waterbury.*
Rockwell, P. G.	*do.*
Rogers, Benjamin	*Hartford.*
Russell, Gurdon W.	*do.*
Salisbury, Samuel T.	*Plymouth.*
Sanford, Leonard J.	*New Haven.*
Silliman, jr., Benjamin	*do.*
Skinner, Alden	*Rockville.*

St. John, Gamaliel H.	*Merwinsville.*
†Sumner, George	*Hartford.*
Talcott, Alvan	*Guilford.*
Totten, J. H.	*New Haven.*
Totten, Thomas H.	*do.*
†Warner, Richard	*Cromwell.*
Webb, Reynold	*Madison.*
†Welch, Archibald	*Hartford.*
Welch, Benjamin	*Lakeville.*
Welch, James	*Winstead.*
Welch, William W.	*Norfolk.*
White, Roderick A.	*Simsbury.*
Williams, Lewis	*Pomfret.*
Wilson, Myron W.	*Hartford.*
†Witter, William	*Willimantic.*
Wood, William	*East Windsor Hill.*
Woodward, Ashbel	*Franklin.*
Wright, Albert A.	*Canaan.*

NEW YORK.

Adams, John G.	*New York.*
Allen, R. L.	*Saratoga Springs.*
Allen, Lucius H.	*Owego, Tioga Co.*
Anderson, James	*New York.*
Anderson, W. C.	*Stapleton.*
Armsby, James H.	*Albany.*
Armstrong, E. W.	*Rochester.*
Atwater, D. F.	*Brooklyn.*
Austin, James M.	*Waterford.*
Ayres, Daniel	*Brooklyn.*
Ayres, Daniel	*Amsterdam.*
Babcock, Charles	*New Hartford, Oneida Co.*
Babcock, M. N.	*Saratoga Springs.*
Bacon, C. G.	*Fulton.*
Baker, jr., A.	*Norwich.*
Barker, B. Fordyce	*New York.*
Batchelder, J. P.	*do.*
Bauer, Louis	*Brooklyn.*
Bay, William	*Albany.*
Baxter, Hiram	*Stillwater, Saratoga Co.*
Beadle, E. L.	*New York.*

Beck, T. Romeyn	*Albany.*
Beebe, Seneca	*McDonough, Chenango Co.*
Bissell, H. P.	*Utica.*
Blakeman, William N.	*New York.*
Blatchford, Thomas W.	*Troy.*
Bolton, Jackson	*New York.*
Borrowe, J. H.	*do.*
Bradford, George W.	*Homer, Cortland Co.*
Brinsmode, Thomas C.	*Troy.*
Brooks, P. B.	*Binghampton, Broome Co.*
Brown, H. W.	*New York.*
Buck, Gurdon	*do.*
Budd, A. E.	*Medford, Burlington Co.*
Budlong, Caleb	*Frankfort, Herkimer Co.*
Buel, William P.	*New York.*
Bulkley, Henry D.	*do.*
Burton, C. V. W.	*Lansingburgh.*
Burwell, Bryant	*Buffalo.*
Burwell, George N.	*do.*
Calkins, Alonzo	*New York.*
Cammann, G. P.	*do.*
Carr Edson	*Canandaigua, Ontario Co.*
Cary, Walter	*Buffalo.*
Carter, Galen	*New York.*
Cash, M. H.	*Ridgebury, Orange Co.*
Chubbuck, H. S.	*Elmira, Chenango Co.*
Church, W. Henry	*New York.*
Clark, Alonzo	*do.*
Clements, James W. G.	*do.*
Clymer, Meredith	*do.*
Cock, Thomas	*do.*
Cock, Thomas F.	*do.*
Cockcroft, James	*do.*
Coe, A. B.	*Oswego.*
Conant, D. S.	*New York.*
Congar, Horace M.	*Buffalo.*
Cook, Simeon A.	*Buskerk's Bridge.*
Corliss, Hiram	*Greenwich, Washington Co.*
Corson, J. W.	*New York.*
Corson, J.	*do.*
Coventry, C. B.	*Utica.*

Crandall, R. O.	*Waverley.*
Dalton, J. C.	*New York.*
Davis, E. H.	*do.*
Dean, H. W.	*Rochester.*
Deming, J. P. H.	*Palmyra.*
Dering, Nicoll H.	*Utica.*
Donoughue, E. O.	*Bergen, Genesee Co.*
Doolittle, A. F.	*Herkimer.*
Downs, Henry S.	*New York.*
Draper, John W.	*do.*
Dubois, Abram	*do.*
Dwight, W. C.	*Moscow, Livingston Co.*
Earle, Pliny	*New York.*
Eastman, M. H.	*Owego.*
Eliott, jr., Geo. T.	*New York.*
Emmet, Thomas Addis	*do.*
Finnell, T. C.	*do.*
Flint, Austin	*do.*
Ford, Corydon L.	*Lockport.*
Foster, Joel	*New York.*
Foster, S. Conant	*do.*
Francis, John W.	*do.*
French, S. H.	*Lisle, Broome Co.*
Gardner, Augustus K.	*New York.*
Garrish, J. P.	*do.*
Gilman, Chandler R.	*do.*
Goodsell, Thomas	*Utica.*
Gray, Henry G.	*North White Creek.*
Green, David	*New York.*
Greene, Caleb	*Homer, Cortland Co.*
†Greene, Isaac	*New York.*
Green, Horace	*do.*
Goodyear, Miles	*Cortland.*
Griscom, John H.	*New York.*
Guthrie, C. B.	*do.*
Hadley, George	*Buffalo.*
Halsted, T. M.	*New York.*
Hamilton, Frank H.	*Buffalo.*
Harvey, Charles W.	*do.*
Hard, P. H.	*Oswego.*

Hart, John	*New York.*
Hart, Samuel	*Oswego.*
Hawley, Joel E.	*Ithaca.*
Henschell, C.	*New York.*
Hubbard, Samuel T.	*do.*
Hubbard, Silas	*Buffalo.*
Hun, Thomas	*Albany.*
Hunt, Sanford B.	*Buffalo.*
Hutchison, J. C.	*Brooklyn.*
Hyde, Frederick	*Cortlandville.*
Hyde Lucius	*Brooklyn.*
Jackson, Thomas	*Binghampton.*
Jackson, William H.	*New York.*
Jacobs, Ferris	*Delhi, Delaware Co.*
Jenkins, J. Foster	*New York.*
Jerome, James H.	*Trumansburg.*
Jewett, C.	*Buffalo.*
Jewett, Harvey	*Canandaigua.*
Jones, Daniel S.	*Baldwinsville.*
Keene, Stephen S.	*New York.*
Kissam, K. S.	*do.*
Krackowitzer, E.	*Brooklyn.*
Lee, Charles A.	*New York.*
Linsly, Jared	*do.*
Little, G. S.	*Kirkwood.*
MacFarlan, Ebenezer	*Williamsburg, Long Island.*
†Manley, James R.	*New York.*
March, Alden	*Albany.*
Markoe, T. M.	*New York.*
McCall, John	*Utica.*
McIntyre, A.	*Wayne Co.*
McIntyre, A.	*Palmyra.*
McNaughton, James	*Albany.*
†McNevin, William H.	*New York.*
McPhail, L. C.	*Brooklyn.*
Metcalfe, John T.	*New York.*
Miller, John	*do.*
Miner, William	*do.*
Miner, J. M.	*Brooklyn.*
Mitchell, Henry	*Norwich.*
Mixer, S. F.	*Buffalo.*

Morrell, J. A.	*New York.*
Morris, R. L.	*do.*
Mott, Valentine	*do.*
Mott, Walter	*Schuylerville, Saratoga Co.*
Moulton, Peter	*New Rochelle, Westchester Co.*
Newman, Jas. M.	*Buffalo.*
Ogden, Benjamin	*New York.*
Orton, J. G.	*Binghampton.*
Parker, Willard	*New York.*
Parker, Edward H.	*do.*
Parkhurst, W. H. H.	*Frankfort.*
Parmly, Eleazer	*New York.*
†Pattison, Granville S.	*do.*
Peters, George A.	*do.*
Phelps, James L.	*do.*
Phillips, S. B.	*do.*
Pierce, J. B.	*Lyons.*
Pomeroy, Charles G.	*Newark, Wayne Co.*
Pond, James O.	*New York.*
Post, Alfred C.	*do.*
Punnett, John	*do.*
Purdy, J.	*Elmira, Chemung Co.*
Purdy, Samuel A.	*New York.*
Purple, S. S.	*do.*
Raymond, Charles H.	*do.*
Reese, D. Meredith	*do.*
Reid, Jno.	*Rochester.*
Reynolds, Tabor B.	*Wilton, Saratoga Co.*
Reynolds, J. H.	*do.*
Rockwell, Wm.	*New York.*
†Rodgers, J. Kearny	*do.*
Russ, J. D.	*do.*
Saunders, A. L.	*Brookfield, Madison Co.*
Sayre, Lewis A.	*New York.*
Schilling, E.	*do.*
Shanks, John	*do.*
Shipman, Azariah B.	*Syracuse.*
Skilton, Avery J.	*Troy.*
Smith, Albert	*New Rochelle.*
Smith, Charles D.	*New York.*
Smith, Joseph M.	*do.*

Smith, Stephen	*New York.*
Snow, Simeon	*Root, Montgomery Co.*
Snyder, Morgan	*Fort Plain.*
Sprague, J. S.	*Exeter, Otsego Co.*
†Stearns, John	*New York.*
Stephenson, Mark	*do.*
Stevens, Alexander H.	*do.*
Stewart, F. Campbell	*do.*
Stewart, James	*do.*
Stewart, Philanda	*Peekskill.*
Stout, Arthur B.	*New York.*
Swett, John A.	*do.*
Taft, Marcus L.	*do.*
Taylor, Isaac E.	*do.*
Taylor, Wm.	*Manlius.*
Tefft, Lake J.	*Onondaga.*
Tellkampf, Theo. A.	*New York.*
Thomas, Daniel	*Utica.*
Thompson, jr., A. G.	*New York.*
Thompson, Alexander	*Aurora, Cayuga Co.*
Thorn, James	*Troy.*
Trask, J. D.	*White Plains.*
Trenor, Jno.	*New York.*
Turner, Thomas	*Flatbush.*
Van Buren, W. H.	*New York.*
Van Buren, Peter	*Albany.*
Vanderpool, S. O.	*do.*
Van Kleek, John R.	*New York.*
Van Pelt, M. D.	*do.*
Van Rensselaer, Alexander	*do.*
Wade, T. A.	*Brooklyn.*
Warner, E. B.	*New York.*
Warren, James	*do.*
Watson, John	*do.*
Watts, Robert	*do.*
Weeks, Cyrus	*do.*
West, H. S.	*Binghampton, Broome Co.*
Wheeler, Lewis C.	*Troy.*
White, Devillo	*Sherburne, Chenango Co.*
White, James P.	*Buffalo.*
White, Oliver	*New York.*

White, S. P.	*New York.*
Willard, Augustus	*Green, Chenango Co.*
Wilcox, Charles H.	*Buffalo.*
Winton, Nelson	*Havana, Chemung Co.*
Wing, Joel A.	*Albany.*
Wood, Isaac	*New York.*
Wood, James R.	*do.*
Woodward, G. F.	*do.*
Wooster, Joseph	*do.*
Wotkyns, Alfred	*Troy.*

NEW JERSEY.

Bateman, B. Rush	*Cedarville.*
Blane, J.	*Perryville.*
Brakeley, P. F.	*Belvidere, Warren Co.*
Butcher, Charles	*Maurice Town, Cumberland Co.*
Butler, S. W.	*Burlington.*
Canfield, J. W.	*Morristown.*
Chetwood, G. R.	*Elizabethtown.*
Clark, C. F.	*Woodbury.*
Clarke, J. Henry	*Newark.*
†Cole, N. W.	*Burlington.*
Coleman, J. B.	*Trenton.*
Coleman, J. P.	*Pemberton.*
Condict, Lewis	*Morristown.*
Cook, Chas.	*Jersey City.*
Cooper, Richard M.	*Camden.*
Corson, T. J.	*Trenton.*
Craig, J. W.	*Plainfield.*
Cullen, Thomas F.	*Camden.*
Dougherty, Alexander N.	*Newark.*
Elmer, William	*Bridgetown.*
Fithian, Enoch	*Greenwich.*
Fithian, Joseph	*Woodbury.*
Garrison, Charles	*Swedesboro'.*
Garrison, J. F.	*do.*
Gibbon, Quinton	*Salem.*
Goodell, Geo.	*Burlington City.*
Haines, Job	*Burlington.*
Hampton, Isaac H.	*Bridgeton.*
Hendry, Charles D.	*Camden Co.*

Hunt, T. Edgar	*Clarksville.*
Longstreet, H. H.	*Bordentown.*
Marsh, Elias J.	*Paterson.*
Morford, A. D.	*Newton.*
Mulford, Isaac L.	*Camden.*
Munn, J. B.	*Chatham, Morris Co.*
Nichols, Whitfield	*Newark.*
Parrish, Joseph	*Burlington.*
Phillips, John H.	*Pennington.*
Pennington, Samuel H.	*Newark.*
Pierson, W.	*Orange.*
Porter, E. M.	*Bridgetown.*
Rogers, Alexander N.	*Paterson.*
Read, Zachariah	*Mount Holly.*
Schenck, F. S.	*Camden.*
Sickler, J. R.	*Carpenter's Land.*
Smith, Lyndon A.	*Newark.*
Steuart, J. R.	*Newton.*
Stratton, B. H.	*Mount Holly.*
Taylor, Othniel H.	*Camden.*
Thomson, Jno.	*Hoboken.*
Woodruff, A. D.	*Haddonfield.*

PENNSYLVANIA.

Allen, J. M.	*Philadelphia.*
Andrews, James P.	*Lancaster.*
Ashmead, William	*Philadelphia.*
Atlee, Washington L.	*do.*
Atlee, John L.	*Lancaster.*
Bache, Franklin	*Philadelphia.*
Bache, T. H.	*do.*
Baker, Charles L.	*Lancaster.*
Bare, A. S.	*do.*
Barrington, Samuel	*Philadelphia.*
†Baskin, George W.	*Mercer.*
Bell, John	*Philadelphia.*
Bertolet, P. G.	*Reading.*
Betton, Thomas F.	*Germantown.*
†Bibighaus, C. H.	*Philadelphia.*
Biddle, John B.	*do.*
Bird, J. F.	*do.*

Bond, Henry	*Philadelphia.*
Breitenbach, J.	*Myerstown.*
Bridges, Robert	*Philadelphia.*
Brinton, John B.	*Westchester.*
Brown, H. J.	*Philadelphia.*
Bruce, S. D.	*Pittsburg.*
Bryan, Joseph R.	*Philadelphia.*
Bryan, James	*do.*
Burden, Jesse R.	*do.*
†Burrowes, Francis S.	*Lancaster.*
Carpenter, Henry	*do.*
Carpenter, James S.	*Pottsville.*
Carson, Joseph	*Philadelphia.*
Carson, William	*do.*
Cassidy P.	*Lancaster.*
†Chapman, Nathaniel	*Philadelphia.*
Coates, B. Horner	*do.*
Condie, D. Francis	*do.*
Confer, J. M.	*Fasteria.*
Conrey, Jno.	*Manayunk.*
Corse, J. S.	*Philadelphia.*
Corson, Hiram	*Plymouth Meeting, Mont. Co.*
Corson, W.	*Norristown.*
Curtis, L.	*Philadelphia.*
Da Costa, T.	*do.*
Darlington, William	*Westchester.*
Dillard, T.	*Philadelphia.*
Dilworth, Samuel	*Pittsburg.*
Dorsey, J. H.	*Huntington.*
Drayton, H. E.	*Philadelphia.*
†Duffield, Samuel	*Lancaster.*
Duncan, Robt.	*do.*
Dyer, Jno.	*Danborough.*
Ehler, J. Augustus	*Lancaster.*
Ellmaker, Thomas	*do.*
Ely, Edward	*New Hope, Bucks Co.*
Emanuel, M.	*Marcus Hook.*
Emerson, Gouverneur	*Philadelphia.*
Emlen, J. V.	*do.*
Eshleman, J. K.	*Lancaster Co.*
Finley, W. R.	*Frankstown.*

Fouke, J. L.	*Gwynedd, Montgomery Co.*
Fox, George	*Philadelphia.*
Fronefield, Charles	*Montgomery Co.*
Gaston, A. K.	*Chester Co.*
Gazzam, Joseph P.	*Pittsburg.*
Gemmill, J. N.	*Alexandria.*
Gerhard, William W.	*Philadelphia.*
Gibson, William	*do.*
Gilbert, David	*do.*
Given, R. A.	*do.*
Goddard, P. B.	*do.*
†Grant, William R.	*do.*
Green, Jas. M.	*do.*
Green, Traill	*Easton.*
Gries, Wm.	*Reading.*
Gryder, M. R.	*Chesnut Level, Lancaster Co.*
Guilford, W. M.	*Lebanon.*
Haines, William S.	*Philadelphia.*
Halberstadt, Geo.	*Pottsville.*
Hallowell, Edward	*Philadelphia.*
Handy, J. H.	*do.*
Harry, Samuel H.	*Doe Run, Chester Co.*
Hart, Alexander C.	*Philadelphia.*
Hartshorne, Henry	*do.*
Hartshorne, Edward	*do.*
Hatfield, N. L.	*do.*
Hays, Isaac	*do.*
Heger, Anthony	*Pottsville.*
Hewson, Addinell	*Philadelphia.*
Hiester, Frank M.	*Reading.*
Hiester, J. P.	*do.*
Hodge, Hugh L.	*Philadelphia.*
Hollingsworth, S. L.	*do.*
Horner, G. R. B.	*do.*
†Horner, William E.	*do.*
†Humes, Samuel	*Lancaster.*
Huston, Robert M.	*Philadelphia.*
Innes, Charles	*Easton.*
Irwin, John S.	*Pittsburg.*
Jackson, R. M. J.	*Cresson.*
Jackson, Samuel (Prof.)	*Philadelphia.*

Jackson, Samuel	*Philadelphia.*
James, R. E.	*Stonechurch.*
James, Charles	*Easton.*
James, O. P.	*Doylestown.*
Janney, Benjamin S.	*Philadelphia.*
Jewell, Wilson	*do.*
Keating, Wm. V.	*do.*
Keith, William	*do.*
Keneagy, Samuel	*Strasburg, Lancaster Co.*
Kennedy, A. L.	*Philadelphia.*
Kerr, James W.	*York, York Co.*
†Kerfoot, George B.	*Lancaster.*
King, Charles R.	*Philadelphia.*
Klapp, William H.	*do.*
Koehler, J. G.	*Schuylkill Haven.*
Lajus, D. Paul	*Philadelphia.*
Lang, Edmund	*do.*
Lamb, Jno. F.	*Frankford.*
La Roche, R.	*Philadelphia.*
Leib, Henry F.	*do.*
Lewis, Samuel	*do.*
Littell, S.	*do.*
Lowman, Jno.	*Johnstown, Cambria Co.*
Ludlow, J. L.	*Philadelphia.*
Mahon, O. S.	*Columbia.*
Martin, Chas. H.	*Allentown.*
Martin, J. A.	*Whitemarsh.*
Matthews, Charles H.	*Doylestown.*
Mayburry, William	*Philadelphia.*
McClellan, J. H. B.	*do.*
McCorkle, W. S.	*Columbia.*
McCoy, John M.	*Bellefonte.*
McClintock, James	*Philadelphia.*
McIlvain, William	*York.*
Meigs, Charles D.	*Philadelphia.*
Mitchell, John K.	*do.*
Mitchell, Thomas D.	*do.*
Moore, John Wilson	*do.*
Morris, Casper	*do.*
†Morton, Samuel George	*do.*
Morton, C. J.	*Springfield.*

Mosser, D. O.	*Brenyville.*
Mowry, Robert B.	*Alleghany City.*
Muhlenburg, F. H.	*Lancaster.*
Muhlenburg, Henry E.	*do.*
Murphey, Andrews	*Parkesburg, Chester Co.*
Mütter, Thomas D.	*Philadelphia.*
Naudain, Arnold	*do.*
Neill, John	*do.*
Norris, George W.	*do.*
Ogier, S. A.	*Frazier, Chester Co.*
Page, William Byrd	*Philadelphia.*
Pancoast, Joseph	*do.*
Parker, Samuel E.	*Hempfield, Lancaster Co.*
†Parrish, Isaac	*Philadelphia.*
Parry, Ely	*Lancaster.*
†Patterson, Henry S.	*Philadelphia.*
†Patterson, George W.	*do.*
Paul, J. Rodman	*do.*
Pennypacker, I. A.	*do.*
Pepper, William	*do.*
Piper, W. A.	*do.*
Pollock, A. M.	*Pittsburg.*
Powell, F. W.	*Philadelphia.*
†Randolph, Jacob	*do.*
Raub, J. K.	*Quarryville.*
Ream, John	*Lancaster.*
Reese, J. J.	*Philadelphia.*
Remington, Isaac	*do.*
Richards, C. O.	*Lancaster.*
Richardson	*Brooklyn.*
Rivinus, Edward F.	*Westchester.*
Rodman, Lewis	*Philadelphia.*
†Rogers, James B.	*do.*
Rogers, R. E.	*do.*
Ross, J. D.	*Williamsburg.*
Rothrock, Abm.	*Mc Veytown.*
Ruschenberger, W. S. W.	*Philadelphia.*
Sargent, jr., Winthrop	*West Philadelphia.*
Shoemaker, Chas.	*Jenkintown.*
Smaltz, J. H.	*Philadelphia.*
Smith, jr., Francis G.	*do.*

Smith, H. H.	*Philadelphia.*
Smith, H. Y.	*do.*
Smith, R. K.	*Darby, Delaware Co.*
Smith, Moses B.	*Philadelphia.*
Spencer, Thomas D.	*do.*
Stewart, J. D.	*do.*
Stillé, Alfred	*do.*
†Stillé, Moreton	*do.*
Stocker, A. E.	*do.*
Stubbs, J. B.	*Rock P. O., Lancaster Co.*
Swift, Edward	*Easton.*
Thomas, George W.	*Norristown.*
Thomas, Isaac	*Westchester.*
Thomas, R. P.	*Philadelphia.*
Thomason, W. D.	*Harrisburg.*
Thompson, William S.	*Lancaster.*
Todd, J. E.	*Philadelphia.*
Townsend, R. H.	*do.*
Townsend, W. W.	*Chatham.*
Turnbull, Lawrence	*Philadelphia.*
Uhler, John	*do.*
Vanbuskirk, Wm. A.	*Pottstown, Montgomery Co.*
Wadsworth, Henry	*Philadelphia.*
Walker, Isaac R.	*Spread Eagle, Chester Co.*
Wallace, Edward	*Reading.*
Watson, William H.	*Bedford.*
West, Francis	*Philadelphia.*
Weidler, Isaac C.	*Seacock P. O., Lancaster Co.*
Wilcocks, Alexander	*Philadelphia.*
Wilson, William J.	*Potter's Mill, Centre Co.*
Wilson, Elwood	*Philadelphia.*
Wiltbank, John	*do.*
Wimley, G. W.	*Limerick Township, Mont. Co.*
Wister, Caspar	*Philadelphia.*
Wood, George B.	*do.*
Wood, Thomas	*Muncy, Lycoming Co.*
Worthington, Wilmer	*Westchester.*
Yardley, Thomas H.	*Philadelphia.*
Zeigler, J. L.	*Mountjoy P. O., Lancaster Co.*
Zeigler, George J.	*Philadelphia.*
Zulick, S. M.	*Orwigsburg.*

DELAWARE.

Askew, Henry F.	*Wilmington.*
Baker, George R.	*do.*
Bullock, W. R.	*do.*
Bush, Lewis P.	*do.*
Clark, R. H.	*Milford.*
Couper, James	*New Castle.*
Cummins, William	*Smyrna.*
Grimshaw, A. H.	*Wilmington.*
Hamilton, William N.	*Cantwell's Bridge.*
Jones, W.	*Vernon.*
Jump, Isaac	*Dover.*
Merritt, Jno.	*Middletown.*
Mitchell, J. R.	*Milford.*
Morris, William W.	*Dover.*
Perkins, John D.	*Smyrna.*
Porter, Robert R.	*Wilmington.*
Saulsbury, G.	*Dover.*
†Smith, Thomas Mackie	*Brandywine.*
Thomson, James W.	*Wilmington.*
Wales, J. P.	*Brandywine.*
Wilson, James F.	*Wilmington.*

MARYLAND.

Alexander, Ashton	*Baltimore.*
Armitage, James	*do.*
Atkinson, Thomas C.	*do.*
Backler, Thomas H.	*do.*
Baer, M. S.	*do.*
Baker, Alfred	*do.*
Baldwin, E. C.	*do.*
Baltzell, W. H.	*do.*
Baxley, Willis H.	*do.*
Belt, W. F.	*Prince George.*
Bolton, James	*Baltimore.*
Bond, Thomas E.	*do.*
Bordley, James	*do.*
Boyd, Charles	*Frederick City.*
Briscoe, John H.	*Baltimore.*
Chamberlaine, J. E. M.	*Easton.*

Chew, Samuel	*Baltimore.*
Clarke, S. R.	*do.*
Cohen, Joshua J.	*do.*
Cox, C. C.	*Easton.*
Crane, W. B.	*Baltimore.*
Dallam, William M.	*Harford Co.*
Davis, William H.	*Baltimore.*
Dawson, James	*St. Michael's, Talbot Co.*
Donaldson, Francis	*Baltimore.*
Dorsey, Lloyd	*Frederick.*
Dulin, Alexander F.	*Baltimore.*
Dunbar, John R. W.	*do.*
Duvall, E. P.	*do.*
Duvall, W.	*Washington, Montgomery Co.*
Fonerden, John	*Baltimore.*
Frick, Chas.	*do.*
Gibson, George S.	*do.*
Gibson, J. Grigg	*Fredericktown.*
Gilman, J.	*Baltimore.*
Goldsborough, H. T.	*Easton, Talbot Co.*
Gunn, John P.	*Baltimore.*
Handy, Samuel K.	*Somerset Co.*
Hardcastle, E. M.	*Trappe.*
Harris, Chapin A.	*Baltimore.*
Hemsley, W.	*Caroline Co.*
Hintze, F. E. B.	*Baltimore.*
Hopkins, Joel	*Elkridge Landing, Howard Co.*
Jameson, sen., Horatio G.	*Baltimore.*
†Jenkins, Solomon M.	*Easton.*
Johnstone, C.	*Baltimore.*
Kennard, T. C.	*Harmony.*
Kinnemann, P. S.	*Baltimore.*
Kinney, jr., William	*do.*
Laurence, G. W.	*Catonsville.*
Leonard, William T.	*Baltimore.*
Martin, Thomas W.	*Dorchester Co.*
Macgill, C.	*Hagerstown.*
Matthews, Thomas	*Milestown.*
Miltenberger, G. W.	*Baltimore.*
Monkur, John C. S.	*do.*
Monmonier, J. T.	*do.*

Murray, R. (U. S. A.)	*Baltimore.*
O'Donnel, D. A.	*do.*
Pinckney, Ninian (U. S. N.)	*Annapolis.*
Piggot, A. S.	*Baltimore.*
Power, William	*do.*
Riley, William	*do.*
Roberts, George C. M.	*do.*
Robinson, Alexander C.	*do.*
Roby, Joseph	*do.*
Sappington, J. K.	*Havre-de-Grace.*
Sappington, Thomas	*Liberty, Frederick Co.*
Smith, Nathan R.	*Baltimore.*
Smith, Samuel P.	*Cumberland.*
Steiner, L. H.	*Baltimore.*
Steuart, R. S.	*Baltimore.*
Stevenson, J. S.	*do.*
Stokes, William H.	*do.*
Teackle, John N.	*do.*
Theobald, Elisha W.	*do.*
Thomas, Richard H.	*do.*
Tyler, Samuel	*Frederick City.*
Warfield, Jesse L.	*Westminster, Carroll Co.*
Webster, John Lee	*Baltimore.*
White, A. M.	*Easton.*
Williams, W.	*Somerset Co.*
Wroth, Peregrine	*Chestertown.*
Wynne, James	*Baltimore.*
Yeates, John L.	*do.*

DISTRICT OF COLUMBIA.

Boyle, Cornelius	*Washington.*
Busey, S. C.	*do.*
Coolidge, R. H.	*do.*
Dove, G. M.	*do.*
Duhamel, W. J. C.	*do.*
Garnett, A. Y. P.	*do.*
Hall, J. C.	*do.*
Hellen, B. J.	*do.*
Johnston, William P.	*do.*
Lindsley, Harvey	*do.*
May, J. F.	*do.*

Miller, Thomas	*Washington.*
Morgan, James E.	*do.*
Riley, J. C.	*do.*
Riley, Joshua	*Georgetown.*
Semmes, A. J.	*Washington.*
Stone, Robert K.	*do.*
Thomas, John M.	*Georgetown.*
Tyler, Grafton	*do.*
Young, N.	*Washington.*

VIRGINIA.

Allen, B. W.	
Ashby, C. H.	*Culpepper C. H.*
Atkinson, Thomas P.	*Danville.*
Barr, S. B. F. C.	*Big Spring, Taylorsville.*
Bates, W. J.	*Wheeling.*
Belt, H. S.	*Pittsylvania.*
Bolton, James	*Richmond.*
Brooks, John N.	*do.*
Browne, O. A.	*Hicksford.*
Brown, P. F.	*Acowac.*
Burruss, J. L.	*Louisa C. H.*
Cabell, James L.	*University of Virginia.*
Cabell, J. G.	*Richmond.*
Carmichael, George F.	*Fredericksburg.*
Cochran, William B.	*Loudon Co.*
Coleman, J. C.	*Richmond.*
Cooke, A. T. M.	*Norfolk.*
Corbin, G. Lane	*Half-Way House, York Co.*
Cox, Thomas E.	*Richmond.*
Creigh, Thomas	*Louisburg.*
Craghead, W. G.	*Danville.*
Cunningham, Jno. A.	*Richmond.*
Dillon, A. S.	*Faronville.*
Dorset, J. L.	*Powhattan.*
Dove, James	*Richmond.*
Dove, Jno.	*do.*
Faunt Le Roy, John	*White Post, Clarke Co.*
Frissell, John	*Wheeling.*
Gibson, Charles Bell	*Richmond.*
†Gooch, P. Claiborne	*do.*

Hancock, F. W.	*Richmond.*
Harrison, E. J.	*Cartersville P. O., Cumberland.*
Haskin, U. D.	*Richmond.*
Haxall, Robert W.	*do.*
Hildreth, E. A.	*Wheeling.*
Houston, M. H.	*do.*
Howard, Henry	*University of Virginia.*
Hurt, J. M.	*Holloway City.*
†Johnson, Carter P.	*Richmond.*
Johnson, James	*Hicksford.*
Joynes, Levin S.	*Accomack C. H.*
Kemper, Charles R.	*Woodville, Rappahannock Co.*
Lake, R. P.	*Richmond.*
Lee, George	*Leesburg, Loudon Co.*
Lewis, T.	*King and Queen, Stevensville P. O.*
Little, John	*Richmond.*
Lumpkin, Jno. G.	*Hanover.*
Lyle, Jas.	*Prince Edward.*
Magill, Henry D.	*Leesburg.*
Mason, A. H.	*Falmouth.*
†Massie, H.	*Charlottsville.*
McElhenny, S. W.	*Wheeling.*
McGuire, Hugh H.	*Winchester.*
Meriwether, W. D.	*Richmond.*
Mettauer, J. P.	*Prince Edward C. H.*
Merritt, A. T. B.	*Richmond.*
Mills, Charles S.	*do.*
Moore, W. J.	*Norfolk.*
Morrison, E. A.	*Lawrence.*
Moseley, W. P.	*Buckingham.*
Nicholson, G. L.	*Middlesex Co.*
Otis, George A.	*Richmond.*
Parker, W. W.	*do.*
Patrick, S.	*Kanawha C. H.*
Patteson, W. A.	*Richmond.*
Patteson, Samuel A.	*Manchester, Chesterfield.*
Payne, A. S.	*Paris, Fauquier Co.*
Peebles, J. F.	*Petersburg.*
Powell, H. B.	*Alexandria.*
Powell, F. W.	*Middleburg.*
Power, R. H.	*Yorktown.*

Quarles, Charles	*Mechanicsville, Louisa Co.*
Randolph, Robert C.	*Mellwood P. O., Clarke Co.*
Roddey, F. W.	*Richmond.*
Rogers, R. E.	*University of Virginia.*
Scott, Martin P.	*Richmond.*
†Selden, William	*Norfolk.*
†Selden, Henry	*do.*
Silvester, R. W.	*do.*
Smith, J. W.	*Petersburg.*
Snead, Albert	*Richmond.*
Spencer, T. C.	*Petersburg.*
Spilter, Adam	*Buchanan, Upshire Co.*
Tabb, J. Prosser	*Gloucester Co.*
Taylor, Kidder R.	*Richmond.*
Terrill, G. F.	*Caroline Co.*
Thweatt, J. J.	*Petersburg.*
Trent, W. W.	*Richmond.*
Trent, P.	*do.*
†Trigg, Daniel	*Abingdon.*
Tucker, A. B.	*Winchester.*
Tucker, David H.	*Richmond.*
†Upshur, George L.	*Norfolk.*
Walke, J. Wistar	*Chesterfield.*
Walshe, Samuel	*Prince George Co.*
Wellford, Beverley R.	*Fredericksburg.*
Wellford, J. S.	*do.*
White, Luke	*Petersburg.*
Wilson, W. E.	*Richmond.*
Wilson, G. A.	*do.*
Wortham, A. G.	*do.*
Worsham, H. C.	*Dinwiddie.*
Yearby, George T.	*Eastville, Northampton.*

NORTH CAROLINA.

Belt, H. Singleton	*Winston, Forsyth C. H.*
Dewey, L. F.	*Goldsboro'.*
Dickson, J. H.	*Wilmington.*
Erwin, J. S.	*Marion.*
Jones, J. B.	*Chapel Hill.*
Mabrey, B. W.	*Tarboro'.*
Manson, O. F.	*Lynesville.*

Mercer, Jno. R.	*Tarborough.*
McKee, W. H.	*Raleigh.*
McKee, W. L.	*Morgantown, Burke Co.*
Myers, J. G. B.	*Washington.*
Norwood, Walter A.	*Hillsboro'.*
Pittman, Newson J.	*Rocky Mount.*
Thomas, W. G.	*Tarborough.*
Thomas, G. W.	*Wilmington.*
Thompson, Jno. R.	*Raleigh.*
Tull, J. G.	*Newbern.*
Warren, W. C.	*Edenton.*
Webb, William	*Hillsboro'.*

SOUTH CAROLINA.

Bailey, R. S.	*Charleston.*
Barratt, Jno. P.	*Abbeville.*
Barker, Sandford W.	*Charleston.*
Bellinger, Jno.	*do.*
Bradley, B. W.	*King's Tree, Williamsburg.*
Cain, D. J.	*Charleston.*
Clawson, C. L.	*Nation Ford.*
Coffin, Amory	*Aiken.*
Crane, Joseph S.	*Columbia.*
Dawson, J. L.	*Charleston.*
De Saussure, H. W.	*do.*
Dickson, Samuel Henry	*do.*
Elfe, Edward	*do.*
Elliott, Thomas A.	*Orangeburgh.*
Fair, Samuel	*Columbia.*
Flagg, C. Beling	*Charleston.*
Ford, Wm. H.	*do.*
Frost, Henry R.	*do.*
Gaillard, Peter C.	*do.*
Geddings, E.	*do.*
Geddings, J. F. M.	*do.*
Gibbes, N. H.	*St. Helena.*
Goodwyn, T. J.	*Orangeburgh.*
Happoldt, C.	*Charleston.*
Hazell, Andrew	*All Saints.*
Holbrook, J. E.	*Charleston.*
Hook, J. H.	*St. Matthew's.*

Horlbeck, Elias	*Charleston.*
Horlbeck, W. C.	*do.*
Jervey, James P.	*do.*
Kinlock, R. A.	*do.*
Lebby, Robert	*do.*
Lynch, John	*Cheraw.*
May, Jno.	*St. George's P. O.*
Mayes, J. A.	*Maysville.*
McKain, Wiley J.	*Camden.*
Michel, R. F.	*Charleston.*
Miller, W. C.	*Georgetown.*
Mitchell, Edward	*Edisto.*
Mitchell, M.	*Charleston.*
Mobley, W. W.	*Lancasterville.*
Moultrie, James	*Charleston.*
Moultrie, W. L.	*St. John's, Berkley.*
Muller, G.	*Lexington.*
Ogier, T. L.	*Charleston.*
Porcher, Francis Y.	*do.*
Porcher, F. Peyre	*do.*
Prioleau, Thomas G.	*do.*
Prioleau, J. Ford	*do.*
Purchin, F.	*do.*
Ravenel, St. Julien	*do.*
Ready, J. C.	*Edgefield.*
Robertson, F. M.	*Charleston.*
Robertson, T. S.	*Winnsboro'.*
Rodrigues, B. A.	*Charleston.*
Saussure, H. W.	*do.*
Simons, T. Y.	*do.*
Smith, Thomas	*Society Hill.*
Waring, Morton	*Black Oak.*
White, O.	*Charleston.*
Williams, Alexander	*Chesterfield.*
Williman, A. B.	*Charleston.*
Winthrop, Henry	*do.*
Wragg, William T.	*do.*

GEORGIA.

Arnold, Richard D.	*Savannah.*
Black, R. C.	*Augusta.*

Bullock, W. Gaston	*Savannah.*
Campbell, H. F.	*Augusta.*
Campbell, Robert	*do.*
Dugas, L. A.	*do.*
Eve, Joseph A.	*do.*
Eve, Paul F.	*do.*
Ford, L. D.	*do.*
Garvin, J. P.	*do.*
Gilbert, J. C.	*Perry.*
Green, James N.	*Macon*
Harris, Stephen N.	*Savannah.*
Harris, Juriah	*Augusta.*
Hofey, Thomas	*Columbus.*
Howard, J. Gordon	*Madison.*
Jones, W. B.	*Atlanta.*
Kollock, Phineas, M.	*Savannah.*
Moore, Richard D.	*Athens.*
Nottingham, C. B.	*Macon.*
Ogilby, Hugh J.	*Madison.*
Phinizy, T. B.	*Augusta.*
Posey, John F.	*Savannah.*
Quintard, C. T.	*Roswell.*
Read, James B.	*Savannah.*
Richardson, C. P.	*do.*
Robertson, J. G.	*do.*
Ruffin, W. R.	*Augusta.*
Simmons, J. N.	*Griffin.*
Thompson, E. J.	*Augusta.*
Tufts, Johnson B.	*Savannah.*

ALABAMA.

Anderson, L. H.	*Sumterville.*
Anderson, W. H.	*Mobile.*
Blakey, Boling A.	*Montgomery.*
Boling, Wm. M.	*do.*
Cabell, P. H.	*Selma.*
Clanton, S. W.	*Warsaw.*
Denny, A.	*Suggsville.*
English, I. A.	*Cahaba.*
Gordon, F. E.	*Marion.*
Hargraves, J. T.	*Florence.*

Johnson, W. B.	*Marion, Perry Co.*
Jones, Benjamin R.	*Montgomery.*
Lopez, A.	*Mobile.*
Merewether, G. M.	*Line Creek.*
Miller, R.	*Mobile.*
Percival, C. F.	*Lowndes Co.*

LOUISIANA.

Barton, Edward H.	*New Orleans.*
†Carpenter, William M.	*do.*
Fenner, E. D.	*do.*
†Harrison, J..	*do.*
Jones, James	*do.*
Nott, G. A.	*do.*
Simonds, J. C.	*do.*

MISSISSIPPI.

Grafton, Thomas J.	*Rodney.*
Keirn, G.	*Lexington, Holmes Co.*

TENNESSEE.

Avent, B. W.	*Murfreesborough.*
Bowling, W. K.	*Nashville.*
Buchanan, A. H.	*do.*
Clements, H. M.	*Clementsville.*
Dabney, E. R.	*Clarksville.*
Eve, Paul F.	*Nashville.*
Foster, R. C.	*Nashville.*
Grant, George	*Memphis.*
Guthrie, C. B.	*do.*
Haggart, Wm. D.	*Gallatin.*
Harris, S. H.	*Nashville.*
Harris, Zeno	*Memphis.*
Haskins, E. B.	*Clarksville.*
Johnston, J. L. C.	*New Providence.*
Lenoir, B. B.	*Roane Co.*
Lindsley, J. B.	*Nashville.*
Lipscomb, Thomas	*Shelbyville.*
Litton, A.	*Nashville.*
Millington, John	*Memphis.*
Ramsey, Frank A.	*Knoxville.*

Shanks, Lewis	*Memphis.*
Thomas, N. L.	*Clarksville.*
Winston, C. K.	*Nashville.*

KENTUCKY.

Bell, T. S.	*Louisville.*
Blackburn, C. J.	*Covington.*
Bradford, J. T.	*Augusta.*
Breckinridge, R. J.	*Louisville.*
Bush, J. M.	*Lexington.*
Chambers, Wm. M.	*Covington.*
Cook, A. B.	*Louisville.*
Edwards, R. A.	*Wallon, Boone Co.*
Evans, Asbury	*Covington.*
Fitch, G. N.	*Logan's Port.*
Flint, J. B.	*Louisville.*
Freeman, D. L.	*Floydsburg.*
Gross, S. D.	*Louisville.*
Holt, W. D.	*Covington.*
Johnston, J. C.	*Louisville.*
Lincoln, J.	*do.*
Miller, Henry H.	*do.*
Moore, Thomas J.	*Harrodsburg.*
Norwood, Walter A.	*Henderson.*
Powell, L.	*Louisville.*
Raphael, B. J.	*do.*
Ray, L. G.	*Paris, Bourbon Co.*
Richardson, T. G.	*Louisville.*
Spillman, C. H.	*Harrodsburg.*
Stevens, B. L.	*Union, Boone Co.*
Sutton, W. L.	*Georgetown.*
Thomson, D. D.	*Louisville.*
Yandell, D. W. L.	*do.*
Yandell, L. P.	*do.*

OHIO.

Arons, Jno. J.	*Cincinnati.*
†Awl, William M.	*Columbus.*
Baird, James M.	*Bourneville.*
Baker, Abraham H.	*Cincinnati.*
Baker, T. H.	*Wayne Co.*

Battles, W. S.	*Edinburg.*
Bigelow, J. M.	*Lancaster.*
Boerstler, G. H.	*do.*
Briggs, J. M.	*Marion.*
Buckner, Philip J.	*Georgetown.*
†Butterfield, J.	*Columbus.*
Carey, Abel	*Salem.*
Carey, Harvey G.	*Dayton.*
Carroll, Thomas	*Cincinnati.*
Carson, William	*Chilicothe.*
Carter, Francis	*Columbus.*
Charters, W. M.	*Lebanon, Warren Co.*
Cleaveland, C. H.	*Cincinnati.*
Clements, Joshua	*Dayton.*
Clendenin, William	*Cincinnati.*
Colton, C. D.	*Marietta.*
Comegys, C. G.	*Cincinnati.*
Conklin, H. Smith	*Sidney, Shelby Co.*
Coons, Israel A.	*Dayton.*
Corson, J.	*Portsmouth.*
Cotton, C. D.	*Marietta.*
Cox, D. A.	*New Paris.*
Crews, James H.	*Upshur, Preble Co.*
Crume, Pliny, M.	*Eaton, Preble Co.*
Dandridge, A. S.	*Cincinnati.*
Davis, F. H.	*Chilicothe.*
Dawson, Jno.	*Columbus.*
Delamater, Jacob J.	*Cleveland.*
Dodge, J. S.	*Cincinnati.*
†Drake, Daniel	*do.*
Dunlap, A.	*Ripley.*
Eaton, T. J.	*New Paris, Preble Co.*
Edwards, Thomas O.	*Cincinnati.*
Effinger, M.	*Lancaster.*
Ferris, S.	*New Westville.*
Fisher, Elias	*Waynesville, Warren Co.*
Ford, P. G.	*Cincinnati.*
Fries, George	*Hanovertown.*
Gaston, Ephraim	*Morristown.*
Gillet, B.	*Springfield.*
Gordon, Thomas W.	

Grant, Charles	*Cincinnati.*
†Harrison, John P.	*do.*
Heterick, A. B.	*Georgetown.*
Hills, Ralph	*Columbia.*
Holston, J. G. F.	*Zanesville.*
Howard, Richard L.	*Columbus.*
Hughes, C. B.	*Cincinnati.*
Hunt, Samuel P.	*Morrow, Warren Co.*
Johnston, A. M.	*Cincinnati.*
Jones, C.	*West Union.*
Judkins, David	*Cincinnati.*
Judkins, J. P.	*do.*
Judkins, William	*do.*
Kreider, M. Z.	*Lancaster.*
Lane, E. S.	*Sandusky.*
Langdon, O. M.	*Cincinnati.*
Lawson, L. M.	*do.*
Leonard, B. B.	*West Liberty.*
Martin, Joshua	*Xenia.*
McArthur, J. W.	*Wilmington.*
McGrew, J. S.	*Montgomery, Hamilton Co.*
McIlvaine, R. R.	*Cincinnati.*
McMally, Thomas	*Chilicothe.*
McMeens, R. R.	*Sandusky.*
Mendenhall, George	*Cincinnati.*
Moxley, M. R.	*Wheelersburg.*
Moxley, T. S.	*Irontown.*
Musgrave, H. B.	*Cincinnati.*
Mussey, F. B.	*do.*
Mussey, Reuben D.	*do.*
†Norton, J. C.	*Marion.*
Norton, O. D.	*Cincinnati.*
Potter, J. F.	*do.*
Raymond, C. H.	*do.*
Read, A. M.	*Norwalk.*
Richards, Wolcott	*Cincinnati.*
Robinson, J. D.	*Wooster, Wayne Co.*
Sachse, G. J.	*Lancaster.*
Safford, R.	*Putnam.*
Sams, C. C.	*Hillsborough.*
Schenck, C. F.	*Columbus.*

Sheets, L. D.	*Dayton.*
Smith, A. C.	*Medina C. H.*
Smith, Edwin	*Dayton.*
Smith, Samuel M.	*Columbus.*
Smith, S. Hanbury	*do.*
Steele, H. K.	*Dayton.*
Stevens, Joshua	*Lebanon.*
St. John, Samuel	*Cleveland.*
Strader, D. P.	*Cincinnati.*
Taggart, W. W.	*Smithville, Wayne Co.*
Taliaferro, W. I.	*Cincinnati.*
Taylor, James	*do.*
Thompson, J. B.	*Columbus.*
Thompson, R.	*do.*
Tilden, D.	*Sandusky, Erie Co.*
Tweed, T. M.	*Eckmansville.*
Updegraff, J. T.	*Mount Pleasant.*
Vanhärlingen, I.	*Lebanon.*
Vattier, J. L.	*Cincinnati.*
Walker, J. P.	*do.*
Waterman, L. D.	*do.*
West, Henry	*Clairsville, Belmont Co.*
White, James	*Lancaster.*
White, John F.	*Cincinnati.*
Williams, I. C.	*Bloomington.*
Wood, Thomas	*Cincinnati.*
Woodward, Charles	*do.*
Wright, James	*Belmont.*
Wright, M. B.	*Cincinnati.*

INDIANA.

Byford, W. H.	*Evansville.*
Clapp, A.	*New Albany.*
Clapp, W. A.	*do.*
Dickey, William	*Dalton.*
Florrer, T. W.	*Alamo.*
Haymond, R.	*Brookville.*
Holt, Willis W.	*Vincennes.*
Horne, S. S.	*Marion.*
John, H. V. V.	*Indianapolis.*
Johnson, Nathan	*Cambridge City, Wayne Co.*

Kersey, Vierling	*Milton.*
Latta, Milton M.	*Goshen.*
Leedy, J. K.	*Warsaw, Kosciusko Co.*
Leonard, S. E.	*New Albany.*
Lomax, William	*Marion.*
Martin, William H.	*Rushville.*
Maclean, George M.	*New Albany.*
Mears, G. W.	*Indianapolis.*
Morgan, Daniel	*Evansville.*
Mothershead, I. L.	*Indianapolis.*
Mullen, Alexander J.	*Napoleon, Ripley Co.*
Murphy, Edward	*New Harmony, Posey Co.*
Parry, Charles	*Indianapolis.*
Patterson, R. J.	*do.*
Pennington, Joel	*Milton, Wayne Co.*
Ronalds, Hugh	*Evansville.*
Rose, Landon C.	*Laporte.*
Sarber, W. E.	*Palestine.*
Sexton, H. G.	*Rushville.*
Shively, James S.	*Marion, Grant Co.*
Sommes, Joseph	*Vincennes.*
Town, R. R.	*New Albany.*

ILLINOIS.

Adams, Nichols	*Quincy.*
Allen, George T.	*Marine.*
Baldwin, S. Y.	*Decatur.*
Bane, Wm. M.	*Payson.*
Bailey, F. K.	*Joliet, Will Co.*
Blaney, J. V. Z.	*Chicago.*
Bloodgood, James	*Chicago.*
Brainard, Daniel	*do.*
Bunce, James	*Galesburg.*
Clark, Charles W.	*Rockford.*
Colburn, E. M.	*Peoria.*
Cooper, E. S.	*do.*
Coopins, P. G.	*Fairweather.*
Davis, N. S.	*Chicago.*
Davis, Wm. H.	*La Salle.*
Dickinson, Edward	*Peoria.*
Edwards, Willis G.	*Alton.*

Evans, John	*Chicago.*
Frier, J. W.	*do.*
Frye, Joseph C.	*Peoria.*
Golleday, H. P.	*Lacon.*
Hamilton, Wm. R.	*Peoria.*
Harrington, W. C.	*Payson.*
Herrick, W. B.	*Chicago.*
Herrick, Josiah B.	*Vandalia.*
Hinsey, Jos. C.	*Pekin.*
King, Joseph	*Decatur.*
Long, S.	*Springfield.*
Luce, A. H.	*Bloomington.*
Maus, Jos. S.	*Perkin.*
Maus, W. S.	*do.*
Nance, Hiram	*Lafayette.*
Noble, S. W.	*Le Roy.*
Palmer, A. B.	*Chicago.*
Paddock, S. A.	*Princeton.*
Prince, David	*Jacksonville.*
Quigley, W. C.	*Chicago.*
Ralston, J. W.	*Quincy.*
Robinson, W.	*Dover.*
Rogers, T. P.	*Bloomington.*
Rouse, Rudolphus	*Peoria.*
Shepherd, M.	*Payson, Adams Co.*
Skelling, David	*Winchester.*
Smith, H. M.	*Vincennes.*
Stahl, Daniel	*Quincy.*
Stout, Joseph	*Ottawa.*
Stipp, George W.	*Bloomington.*
Thompson, Samuel	*Albion, Edwards Co.*
Trowbridge, S. J.	*Decatur.*
Washburn, Thomas	*Lawrenceville.*
Welch, Wm. W.	*La Salle.*
Wood, Wm.	*Cairo.*

MISSOURI.

Adison, Stephen	*St. Louis.*
Alleyne, J. S. B.	*do.*
Alexander, John B.	*Lexington.*
Athurson, J. F.	*do.*

Baines, Jno.	*St. Louis.*
Barrel, R. T.	*do.*
Baumgarten, Fred. E.	*do.*
Chandler, Chas. Quarles	*Rockfort.*
Clarke, R.	*St. Louis.*
Coons, A. J.	*do.*
Cooper, D. M.	*do.*
Currie, Wm.	*Jefferson City.*
Edgar, Wm. S.	*St. Louis.*
Engleman, George	*do.*
Golding, Walter S.	*do.*
Hartt, George C.	*Booneville.*
Hempstead, C. W.	*St. Louis.*
Holmes, R. S.	*do.*
Johnson, George	*do.*
Johnson, John B.	*do.*
Johnson, Richard P.	*do.*
Lemoine, E. S.	*do.*
Lewis, R. K.	*Huntsville.*
Magoffin, John	*St. Louis.*
Massie, T. E.	*do.*
McDowell, Joseph	*do.*
McMurray, John H.	*Independence.*
McPheeters, Wm. M.	*St. Louis.*
Meade, D. E.	*do.*
Moore, John S.	*do.*
Moses, S. Gratz	*do.*
Perry, L. P.	*do.*
Peur, George	*Fee-fee.*
Pollak, S.	*St. Louis.*
Pope, Charles A.	*do.*
Reyburn, Thomas	*do.*
Reynolds, J. W.	*Port William.*
Riley, A. A.	*Fulton.*
Schaenrick, H.	*St. Louis.*
Shoemacher, Hammond	*Milwood.*
Scott, J. W.	*St. Louis.*
Smith, J. D.	*Fayette.*
Smith, E. F.	*St. Louis.*
Stevens, C. W.	*do.*
Tandy, D. C.	*do.*

Vaughn, Isaac P.	*Glasgow.*
Walker, George S.	*St. Louis.*
Washington, James R.	*do.*
Welborn, John C.	*Frankford.*
Wilson, J. W.	*St. Louis.*
Wislizénus, Adolphus	*do.*
Woodson, John C.	*Spencersburg.*

MICHIGAN.

Allen, J. A.	*Ann Arbor.*
Andrews, J.	*Pawpaw.*
Axford, S. M.	*Flint.*
Beech, J. H.	*Coldwater.*
Brodie, Wm.	*Detroit.*
Johnson, G. K.	*Pontiac.*
Leland, A. L.	*Detroit.*
Murray, Andrew	*Niles.*
Paddach, J.	*Pontiac.*
Palmer, A. B.	*Tecumseh.*
Pierce, James L.	*Corunna.*
Pitcher, Zina	*Detroit.*
Stebbins, N. D.	*do.*
Taylor, Hen.	*Mount Clemens.*
Tripler, C. S.	*Detroit.*

IOWA.

Armour, Samuel G.	*Keokuk.*
Arnold, Edward A.	*Davenport.*
Elbert, Jno. D.	*Keosauqua, Van Buren Co.*
Ely, Jno. F.	*Cedar Rapids.*
Ford, E. R.	*Keokuk.*
Hughes, J. C.	*do.*
Malcolm, A. B.	*Dubuque.*
McGugin, D. C.	*do.*
Rauch, J. H.	*Burlington.*
Sanborn, J. E.	*Keokuk.*
Sanford, John F.	*do.*
Siveter, Thomas	*Salem.*
Van Patten, N.	*Davenport.*

WISCONSIN.

Bartlett, John K.	*Milwaukie.*
Brown, J. J.	*Madison.*
Castleman, A. L.	*Delafield.*
Chapman, C. B.	*Madison.*
Douseman, John B.	*Milwaukie.*
Pease, C. G.	*Rock.*
Wilbur, George	*Mineral Point.*

MINNESOTA TERRITORY.

Murphy, John	*Falls St. Anthony.*

CHEROKEE NATION.

Ross, R. D.	*Grand Sabine.*

UNITED STATES ARMY.

Cuyler, J. M.	Moses, Israel.
McLaren, A. N.	Porter, J. B.

UNITED STATES NAVY.

Barrington, Samuel.	Horner, G. R. B.
Delany, M. G.	Lockwood, John.
Dillard, T.	Pinckney, Ninian.
Greene, J. M.	Wood, W. Maxwell.

FOREIGN.

W. F. Atlee,
A. J. Semmes,
W. H. Berry,
R. R. McIlvaine,
N. J. Pittman,
} Delegates from the *American Medical Society in Paris.*

INDEX.

Absent members, resolutions respecting, 29
Address, Mayor Conrad's, 709
President Pope's, 75
Alcoholic liquors, effects of in health and disease, 571
Assessment of permanent members, resolutions respecting, 29
Association, American Medical, plan of organization of, 691
funds and appropriations of, 696
meetings of, 694
members of, 693
officers of, 694
provision for amendments, 696
resolutions respecting next meeting of, 26–33
standing committees of, 695
title of, 693
Atmosphere, report on hygrometrical influence of, on health, Dr. Hunt, 327

Bilious diarrhœa in St. Louis, 100
Butter and cream in scrofula, 530
Byford, Dr. W. H., on scrofula, 493

Caustic pulverizer, sketch of, Dr. Thomas, 589
Cholera in St. Louis, 91, 151, 179, 224
infantum in St. Louis, 102, 158, 206, 234
Circular respecting hydrophobia, 46
Clavicle, fractures of, Dr. Hamilton, 392
American plans of treating, 438
Committee of nomination, report of, 31, 39, 54
publication, report of, 65
Committees, standing, 695
Conrad's, Mayor, address of, 109
Coroners' qualifications, resolutions respecting, 53
County medical societies, resolutions respecting, 44
Creasote in dysentery, 557

Davis, N. S., report on the means of preserving milk, 535
Delegates, list of, 10

Diarrhœa in St. Louis, 96, 154, 205, 234
Diet of the sick, Dr. Hooker's report on, 445
concluding summary, 491
condition of nutritive function in disease, 463
general principles for, 464
general principles, &c., of diet, 448
in dysentery, 488
in dyspepsia, 472
in phthisis, 475
in typhus fever, 480
object of food in sickness, 469
of nursing-women, 489
physiology of nutrition, 447
Diseases of Missouri and Iowa, 81, 148, 190, 228
Dysentery in St. Louis, 99, 156, 205, 234
creasote in, 557
report on, 545
rules for diet in, 488
treatment of, 551
Dyspepsia, rules for diet in, 472

Epidemic in St. Charles and Warren Counties, 126
Epidemics in Missouri and Iowa, report on, 82
Erysipelas in Howard and Platte Counties, 184
Exercise in scrofula, 522

Fevers in St. Louis, 106, 160, 208, 252
Food, object of, in sickness, 469
Fractures, Dr. Hamilton on deformities after, 347

Gross, Dr. S. D., resolutions respecting President's election, 60

Hamilton, Dr., on deformities after fractures, 347
clavicle, 392
fractured clavicles, 438
maxilla inferior, 378
ossa maxillaria superiora, 375
of ossa nasi, 355
septum narium, 368
Homœopathy in schools, resolutions respecting, 55

Hooker, Dr. C., on diet of the sick, 455
Hospital report of diseases in St. Louis, 165, 218
Howard County, erysipelas in, 184
Hunt, Dr. S. B., on hygrometric state of atmosphere, 327
Hydrophobia, circular respecting, 46
Hygrometrical influence of atmosphere on health, report on, 327

Iowa, report on diseases of, 81, 148, 190, 223

List of delegates, 10
permanent members, 718

Marasmus in St. Louis, 158
Maxilla inferior, Dr. Hamilton on fractures of, 378
Maxillaria superiora, on fractures of, 378
Measles and scarlatina, on interfusion of, 287
in St. Louis, 149
Medical topography of different States, resolutions respecting, 36, 44
Meeting of Association, resolutions respecting, 33
Meetings of Association, stated, 694
Members, permanent, list of, 718
Membership, qualifications for, resolutions respecting, 58
Mercury in scrofula, 527
Milk, means of preserving, report of committee on, 535
Minutes of, proceeding, 9
Missouri and Iowa, diseases of, 81, 148, 190, 223
in Andrew County, 141, 186
in Boone County, 130
in Buchanan County, 138, 187
in Chareton County, 134
in Cooper County, 186
in De Kalb County, 143
in Gasconade County, 128, 185
in St. Genevieve County, 147
in Marion County, 146, 188
in Jackson County, 136
in St. Louis, 90, 148, 190
Mussey, Dr. R. D., on effects of alcoholic liquors, 571

Nitrate of silver, Dr. Thomas on application of to the air-passages, 59
in dysentery, 549
Nominating committee, appointment of, 25
reports of, 31, 40, 54, 59
Nutrition, physiology of, 447

Ohio State Medical Society, resolutions respecting, 56
Oils in scrofula, 529
Ossa nasi, Dr. Hamilton on fractures of, 355
maxillaria superiora, fracture of, 378

Permanent members, resolutions respecting assessment of, 29
Phelps, Dr., essay, report respecting, 50
Phthisis, diet in, rules for, 475
Physiology of nutrition, 447
Placenta prævia, statistics, 593
age of children at delivery, table showing, 654
ages, summary of, 600
artificial separation and expulsion of placenta, table showing, 666
child, presentation of, 603
condition of patients prior to separation of placenta, 676
conditions for which detachment was resorted to, 679
recoveries after turning, table showing, 604
date of death after deliveries, 641
deaths after delivery by turning, table showing, 626
degree of placental presentation, 640
delivery, mode of, 638
fate of child, 653
general view of the subject, 685
hemorrhage after detachment of the placenta, 679
hemorrhage, degree of, 639
mode of delivery, 677
mortality of children after artificial detachment, 681
os uteri, condition of, at time of delivery, 641
placenta, disposition of, 680
placenta, management of, 655
presentation, degree of placenta, 600
presentation of placenta, 675
pregnancy, duration of, 601
pregnancy, number of, 600
separation, hemorrhage before, 676
spontaneous separation and expulsion of placenta, table showing 656
spontaneous separation of placenta before parturition, table showing 662
time between separation of placenta and delivery of the child, 680
Platte County, erysipelas in, 184
President's election, Gross's resolution respecting, 60
address, 75
appointment of, 32
Prize essay, 593
Prize essays, &c., report on, 27
Publication, committee of, resolutions respecting report of, 36–37
appointment of, 32
report of, 65

Quarantine laws, resolutions respecting, 87
report on diseases of St. Louis, 220

Railroad companies, resolutions respecting, 34

Registration of marriages, births, &c., resolutions respecting, 49
appointment of committee on, 54
Reports, special reception of, 29
Retiring officers, resolutions respecting, 33–35
Reyburn, T., report on epidemics of Missouri and Iowa, 83

Scarlatina and measles, on interfusion of, 287
in St. Louis, 150, 191
Scrofula, anatomy of, 495
description, 514
etiology, 508
nature of, 500
treatment, 521
Septum narium, Dr. Hamilton on fractures of, 368
Smartweed in dysentery, 551
Societies, county medical, resolutions respecting, 44
State medical, resolutions respecting, 55–56
Special committee, consideration of reports of, 39
appointments of, 55
Special reports, resolutions respecting, 29
State medical societies, resolutions respecting, 55–58
Stillé's Dr., resolutions respecting reformation in teaching, 57
St. Louis, population of, 87
bilious diarrhœa, 100
cholera in, 91, 151, 179, 224
cholera infantum, 102, 158, 206
diarrhœa in, 96, 154, 205, 234
dysentery in, 99, 156, 205, 234
St. Louis—*continued.*
fevers, 106, 160, 208, 252
marasmus in, 158
measles in, 149
meteorological table for, 116, 162, 214, 263
mortuary reports in, 119, 165, 217, 267, 274
hospital, report of diseases in, 165, 218
report on diseases of, 90, 148, 190, 224
rise and fall of Mississippi at, 89
quarantine report on diseases of, 171, 221, 254
scarlatina in, 150, 191
tables showing effects of various causes on health of, 291, 323
topography of, 83

Thomas, Dr. R. H., sketch of caustic pulverizer, 589
Thomson, J. W., resolution on medical topography, 36
Topography, medical, of different States, resolutions respecting, 36, 44
Teaching, method of, resolutions respecting, 57
Trask, J. D., Statistics of placenta prævia (Prize Essay), 593
Treasurer, report of, 69
Typhus fever, rules for diet in, 480

Vital statistics, registration of, resolutions respecting, 53

Washington Monument, resolutions respecting, 37

WESBY & S
AUG
68